 Experimental and Clinical Studies

PSYCHOSOMATIC MEDICINE

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Role of Somatic Trigger Areas in the Patterns of Hysteria

JANET TRAVELL, M. D., AND NOLTON H. BIGELOW, M. D.

AMONG several hundred patients with muscular pain and associated disturbances of function, and with trigger areas in the voluntary muscles, we had the opportunity to study a few subjects who exhibited the classical patterns of hysteria. These patterns included disorders of vision, respiration, motor power, and cutaneous sensation.

Briefly, our data indicate first, that the phenomena of hysteria which we observed were in each instance mediated by afferent neural impulses from trigger areas in the skeletal muscles. Secondly, similarly located trigger areas produced the same pattern of clinical effects whether the trigger mechanism was activated in one person by psychogenic stress or in another person by some other factor such as physical trauma. These observations are important since they suggest one basic physiologic mechanism to correlate the bizarre and apparently unrelated signs and symptoms which coexist in the hysterical syndromes.

THE SOMATIC TRIGGER AREA

One naturally asks: What is a somatic trigger area? Although little is known about its precise nature, a trigger area may be defined as a discrete zone which develops spontaneously within myofascial structures (or skin), and which is hypersensitive to pressure. Furthermore, the trigger area gives rise to referred pain, as shown by the fact that whenever this spot is mechanically stimulated by pressure or by needling, pain is perceived at a distance in a distribution which cannot be explained by assuming direct stimulation of a sensory nerve. Nor does the reference of pain necessarily follow a simple "segmental" distribution (15). Concomitant with referred pain, the trigger area gives rise also to measurable changes in function of structures located within the zone of pain reference, namely, spasm and fasciculation of the skeletal muscles, and vasomotor and other autonomic effects localized to the reference zone (14).

This matter of vascular changes in the reference zone is pertinent to our concept of the basic mechanism which correlates the bizarre patterns of hysteria. It should be noted, therefore, that referred pain induced by stimulation of a trigger area is accompanied by vasoconstriction in the reference zone, and that blocking of the trigger mechanism results in disappearance of referred pain and in vasodilatation localized to the area of pain reference.

How may one recognize a somatic trigger area? There should be no mystery about this, since one or more such abnormal zones of hyperexcitability can be found in many people in the older age groups, provided one looks for them and makes the necessary examination. This procedure has been described in detail (5, 6, 13, 17). Briefly, the trigger area is demonstrated by two essential attributes: 1) When a spot of deep tenderness is found and steady pressure exerted on it or a needle inserted into it, the subject describes a momentary but clear reference of pain at a distance, which usually follows a predictable pattern. 2) When the trigger area is adequately infiltrated with procaine or other material, pressure and needling no longer produce the previously noted reference of pain. It should be stated that of the trigger areas frequently encountered, many are of latent or low-grade spontaneous activity, and the referred pain which they induce is not accompanied by the striking autonomic effects and bizarre patterns which characterize the high-intensity stimuli initiated by the trigger areas of hysteria.

CLINICAL DATA

Three cases are presented which demonstrate the role of somatic trigger areas in the patterns of hysteria.

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Presented at the Annual Meeting of the American Society for Research in Psychosomatic Problems, Inc., Atlantic City, May 3, 1947.

Case 1. Respiratory, Muscular, and Cutaneous Patterns

The patient was a 42-year-old white woman who was seen because of chest pain, cough, and extremely rapid respiratory rate of eleven weeks' duration. The onset of tachypnea had occurred during convalescence from virus pneumonia; while undressing, the patient fainted and on recovering consciousness complained of severe pain around the left costal margin exaggerated by deep breathing. There was a paroxysmal dry cough and respiration was rapid. She was hospitalized. The above symptoms continued, and the pain spread from the left to the right side of the chest. Hoarseness appeared. About four weeks after the onset, the respiratory rate had risen to 100 per minute.

When the patient was examined eleven weeks after the onset, the respirations were extremely rapid and shallow and resembled the panting of a dog. The chest was fixed in a midinspiratory position. There was no cyanosis, air-hunger, or orthopnea. The respiratory rate was maintained continuously at about 100 to 140 per miute (Fig. 1), except when the patient was asleep and under the influence of morphine and barbiturates. The respiratory rate did not always revert to normal during sleep, however. Paroxysms of coughing occurred frequently. Speech was not difficult.

No organic cause for these disorders was found. However, examination revealed limitation of motion of both shoulders and of the scapulae. Spasm and tenderness was present in practically every muscle of the chest and shoulder girdles. Pressure on each of many tender spots in the pectoral and serratus muscles momentarily set off an intense spread of pain throughout the chest, and indicated the presence of numerous trigger areas. Coughing attacks could be precipitated by pressure on trigger areas located in the parasternal region on either side.

Neurologic examination revealed absence of the pharyngeal reflex, unexplained weakness of the grip of the right hand, and a large patch of cutaneous hypesthesia over the right tibia which was not compatible with any recognized neurologic lesion and which varied in size and shape from day to day.

Questioning revealed major conflicts in the relations of the patient with the members of her family, especially her mother who was paying for her medical expenses. The patient's attitude toward her respiratory dysfunction was one of total indifference.

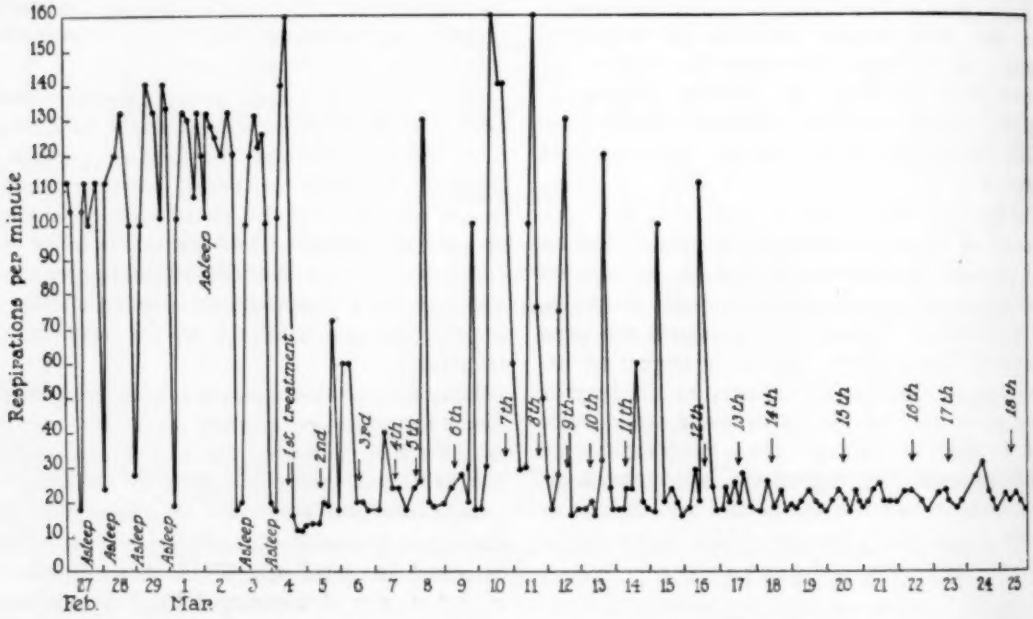

FIG. 1. *Case 1.* Chart of the respiratory rate in relation to treatment by procaine infiltration of trigger areas in the chest muscles. Note return of respiration to a normal rate immediately after the first treatment, brief spontaneous recurrences of tachypnea during the next two weeks, and ultimate disappearance of the respiratory tic after a series of such treatments.

Respiratory Tic

In other subjects in whom evidence for a diagnosis of hysteria was lacking, we had learned that direct trauma to the serratus anterior muscle might result in acute spasm of this muscle with painful shallow respiration and respiratory rates up to 60 per minute. In these cases, local procaine infiltration of trigger areas in the serratus anterior muscle produced immediate relief of chest pain and respiratory difficulty.

On the basis of this experience with the trau-

matic myalgias, treatment by local infiltration of trigger areas in the serratus muscles was undertaken in this case of hysteria. As shown in Figure 1, just prior to the first treatment palpation of the chest muscles caused the respiratory rate to rise from 140 to 160 per minute. The serratus anterior muscle was then infiltrated in the midaxillary line at practically every rib level, first on the left and then on the right. Each injection set off an intense spread of pain around and through the chest at the corresponding level. The pain induced was so intense that during the pain reference the pupils dilated widely, although they were otherwise markedly constricted and fixed owing to the action of morphine.

During the first treatment, there was no significant change in the respiratory rate until local tenderness and pain reference on pressure had been almost entirely abolished for both right and left serratus anterior muscles. At this point the respirations suddenly dropped from 160 to 16 per minute and their character changed from panting to normal depth (see Fig. 1). This was the first time that normal respiration had been present for many weeks while the patient was awake.

During the ensuing twenty-four hours, the patient complained of pain in the chest together with racking paroxysms of cough. However, the respirations did not rise above 14 per minute. At the second treatment on the following day the trigger areas in the parasternal region which induced coughing were infiltrated. From this time, cough was never again a serious problem and gradually disappeared. The parasternal trigger areas were reinjected on one more occasion.

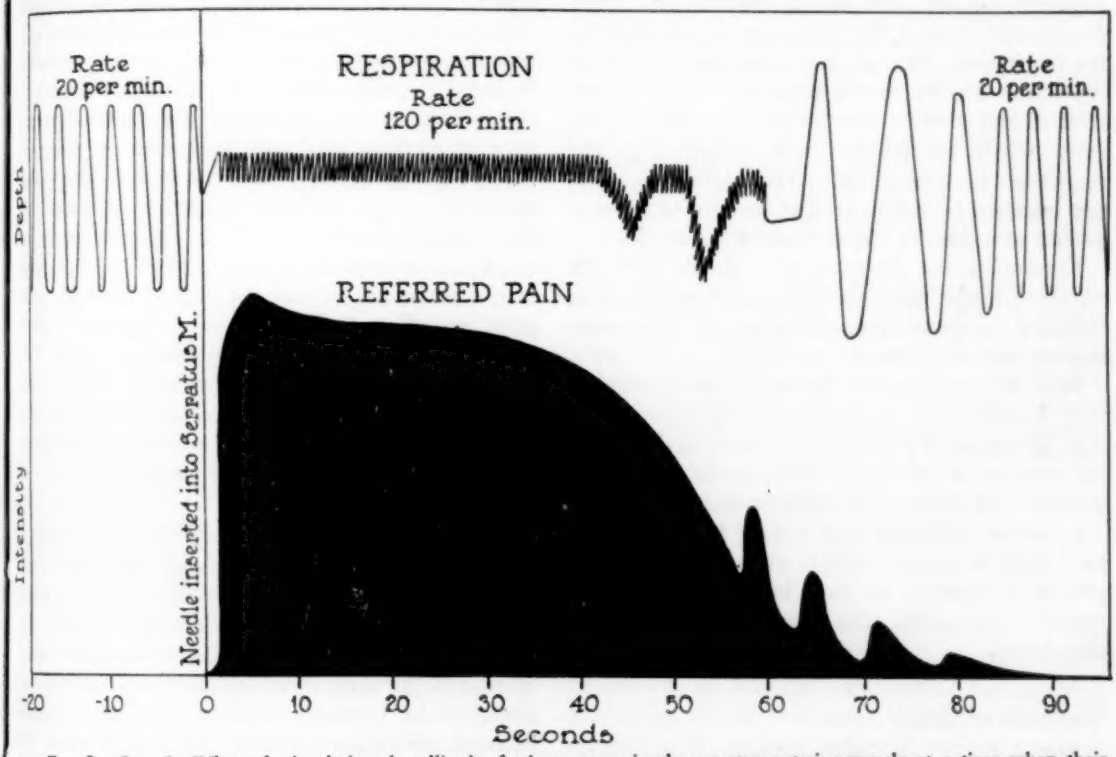

FIG. 2. *Case 1.* Effect of stimulation (needling) of trigger areas in the serratus anterior muscle at a time when their activity was clinically latent and the respiratory tic absent (schematic representation). Note transient reversion of the respiration to its shallow panting character during the induced reference of pain to the chest.

Following the first treatment, the respiratory tic reappeared spontaneously for short periods during two weeks, as shown in the midsection of the chart in Figure 1. During these 2 weeks, in the periods when respiration was normal and the somatic trigger mechanism was clinically latent, an acute episode of the respiratory tic attended each infiltration of the serratus anterior muscles; the insertion of the needle into these trigger areas momentarily set off the entire pattern of referred pain and panting respiration (see Fig. 2). Then, as the referred pain thus induced began to fade, deep and slow excursions of the chest appeared and for several seconds one respiratory rhythm was superimposed on the other. As the referred pain finally disappeared,

tachypnea ceased and normal respiration was resumed.

Such an episode of the respiratory tic occurred repeatedly on stimulation of the latent trigger areas in the serratus muscles. On the other hand, the insertion of a needle into trigger areas in the adjacent pectoral muscles, which set off an equally intense reference of pain in the chest, never reproduced this respiratory disorder. Alternate injections of the multiple trigger areas in the serratus and pectoral muscles, made only a few minutes apart, consistently showed this difference in the effect on the respiration. One can be certain as to which of these muscles the needle penetrated, because the serratus and pectoral muscles do not overlap in the axilla where the trigger areas concerned in the respiratory tic were located. This necessity for precise injection of specific trigger areas rules out suggestion as a possible explanation of the results.

Eventually, the insertion of a needle into the serratus muscles failed to induce tachypnea, and at this time the spontaneous recurrences of the respiratory tic also disappeared (see Fig. 1).

With the subsidence of the incapacitating respiratory disorder, the pattern shifted to pain in the arm. When infiltration of trigger areas in the scapular muscles abolished the pain in the upper extremity, pain appeared in other regions of the body. The results indicated that it may be possible by local block of somatic trigger areas to abolish each pattern of hysteria in turn, but not to cure the patient. Therefore, this type of therapy was abandoned.

Weakness of Grip

Although no pain was produced by the inadequate attempt to make a hard fist, pressure on the dorsum of the right forearm disclosed areas of deep tenderness with reference of pain to the wrist and hand. Prior to the termination of local block therapy, these trigger areas in the extensor muscles of the forearm were infiltrated with procaine on two occasions. Marked improvement in the strength of the grip was noted immediately after the first treatment. After the second, it became equal to that of the left hand, as measured objectively by a recording instrument. Motor power remained normal without further treatment during several weeks of observation.

Sensory Loss

In the zone of cutaneous hypesthesia over the right tibia, sensation was grossly diminished for cotton, pinprick, and vibration. More precise analysis showed that the first or fast pain of the double pain response to pinprick (2, 20) could not be elicited in this area, whereas the second or slow response was retained. This suggests that pain sensation subserved by the myelinated A fibers was reduced, whereas that subserved by the unmyelinated C fibers was unaffected (20).

Infiltration of trigger areas in the right adductor muscles high in the thigh was carried out, since it had been learned empirically in other individuals with pain syndromes of the lower extremity (18) that the pattern of pain reference from these sites included the tibial region. In the case in question, the infiltration was attended by the expected reference of pain to the hypesthetic area of the leg. About fifteen minutes later, the patient surprised us by reporting a prickling or tingling sensation in the zone of sensory loss. Marked *hyper*esthesia of the skin to light touch was then found to be present in the previously hypesthetic region; a single pinprick set off a sensation "like a shower of fine needles" which lasted several seconds after the stimulus was applied. The cutaneous *hyper*esthesia persisted for nearly four hours. At the end of this time, examination showed that sensation in the area of previous sensory impairment was normal.

Comment

In this patient, several seemingly unrelated patterns of hysteria, namely, disorders of respiration, motor power, and cutaneous sensation, were all shown to be mediated by afferent impulses from specific trigger areas in the voluntary muscles, since blocking the respective sources of these impulses by local infiltration abolished the phenomena.

The respiratory tic was dependent on trigger areas in the serratus anterior muscles. This was clearly demonstrated in the stage of recovery when spontaneous tachypnea was absent but the somatic trigger mechanism for this pattern was latent. Under these circumstances, a brief episode of tachypnea accompanied the referred chest pain induced by insertion of a needle into any one of the tender spots in the serratus muscles (see Fig. 2). On the other hand, referred chest pain of similar intensity, produced by insertion of a needle into trigger areas in adjacent muscles of the chest and shoulder girdles, was never accompanied by tachypnea. Such control observations serve to rule out the nonspecific effects of the injection procedure or of pain in the chest.

The trigger areas which mediated the respiratory tic in this case of hysteria were located in the same

muscle as that which gave rise in other subjects to chest pain and somewhat analogous disturbances of respiration after physical trauma. The repeated association of this respiratory pattern with a specific site (the serratus muscles) implies fixed neural pathways (15) which link this somatic trigger mechanism with the respiratory system, regardless of the predominating etiology.

Concerning the motor dysfunction, trigger areas in the long extensor muscles of the wrist and fingers were selected for infiltration because it had been previously learned in a number of subjects that weakness of the grip which persisted after an injury to the arm or hand, either with or without pain, could often be permanently relieved in this manner. Such unexplained loss of strength is attributable to failure of the extensor muscles to fix the wrist in a position of partial extension, which is essential to a strong grip. The restoration of strength by local block suggests that reflex inhibition of contraction of the muscle group which contains the trigger areas may occur below the threshold of pain perception; or possibly afferent impulses from these trigger areas give rise to reciprocal overactivity of the antagonist muscles, as suggested by Ransohoff's recording of action potentials with the cathode-ray oscillograph in hysterical paralysis (11).

The differential loss of fast and slow cutaneous pain sensibility in the area of hypesthesia suggests a parallelism with experimental ischemic neuritis (2, 20). In normal subjects, after the circulation has been occluded by a blood pressure cuff for ten to twenty minutes and as the neuritis progresses, prior to total anesthesia there is an interval during which the first or fast pain of the double pain response to pinprick is absent, but the second or delayed response is still unimpaired. At this stage, the changes are like those observed in the zone of sensory loss in this case of hysteria. The prickling reported by the patient shortly after local block of the trigger areas concerned in this pattern is likewise similar to the sensation which develops following release of the blood-pressure cuff and restoration of the circulation in experimental nerve asphyxia. These similarities suggest that the patchy hypesthesia of the hysterical syndromes is in fact the result of prolonged partial ischemia. We may assume further that this process is localized to a reference zone in which vasoconstriction is maintained by high intensity stimuli from specific trigger areas within the voluntary muscles. Fluctuations in the spontaneous activity of the trigger areas, which are observed to take place constantly, would readily account for the day-to-day variations in the outline of these areas of cutaneous sensory loss so characteristically seen in patients with hysteria.

Case 2. Visual Patterns

The patient was a 51-year-old white housewife, who for nearly a year had been treated for headache by occasional procaine infiltration of trigger areas in the neck muscles. Pain was referred from these sites to different regions of the head. The headaches were variously accompanied by nausea, vertigo, tinnitis, deafness, an auditory "echo," or scotoma. Headache was so severe as to totally incapacitate the patient for days at a time. Local block of somatic trigger areas always secured marked amelioration of referred head pain and its concomitants (14), but relief was only temporary and recurrences were frequent. Symptoms usually appeared after quarrels with her daughter, which progressed at times even to physical conflict. They lived together, and during the ensuing disability the daughter was obliged to stay at home and take care of her mother.

The past history revealed that several radical operations had been performed on the nasal sinuses because of recurrent pansinusitis. The frontal plates over both orbits had been removed. A double mastoid operation had been done. There was also a chronic productive cough of unidentified etiology. Unexplained episodes of fever with an erysipelas-like eruption of the face occurred at long intervals. Intensive penicillin therapy (parenteral) given in the hospital did not prevent the febrile attacks, and had no apparent influence on headache.

Amblyopia

After an interval of two and one half months without local treatment for headache, the patient returned to us with the complaint of loss of vision in the right eye of two weeks' duration. The onset of amblyopia occurred suddenly while the patient was sitting at supper, and was preceded by "silver sparkles like a sunburst" before the right eye. The next day the vision returned and remained good for two days, but since then blindness had been almost complete. After ophthalmoscopic examination in the eye clinic, she was told that nothing could be done for her vision. We concurred in this statement. The diagnosis was a central scotoma on an arteriosclerotic basis.

The chief complaint at this visit was not the visual loss in the right eye, but severe left-sided headache which had developed since the onset of blindness. A trigger area was found in the suprascapular portion of the left trapezius muscle, pressure on which set off a reference of pain to the left side of the head. Infiltration of this trigger area reproduced this spread of pain on the left side and also set off a crossed reference of sharp prickling

pain in the right ear (Fig. 3). About one minute later, as the reference of pain subsided, the right ear became bright red and hot, and the patient complained that it "burned as if too close to a fire." The ear remained red for approximately five hours. There was no change in vision.

At the next visit sixteen days later, when a trigger area in the same region of the left trapezius muscle was again infiltrated, pain was referred to the same areas, even to the opposite ear. A trigger area was then discovered in the left levator scapulae muscle at the angle of the neck, pressure on which set off what the patient described as "a shower of

FIG. 3. *Case 2.* Distribution of referred pain elicited by infiltration of a trigger area in the suprascapular portion of the left trapezius muscle. Note crossed reference of pain to the opposite ear, which was followed almost at once by marked and prolonged vasodilatation of this ear. Block of this trigger area had no influence on vision.

blue and purple spots in front of the left eye." The referred pain and scotoma lasted about thirty seconds. Procaine infiltration of this trigger area was attended by an intense pain perceived deep inside the head and a similar shower of colored spots. Within a minute or two, when these reference phenomena subsided, the patient volunteered the information that "the film was gone from the right eye." She was as much surprised as we were. With the left eye covered, she could distinguish colors and count accurately the number of fingers held in front of her. She could not read print. She said that the restoration of sight in the right eye lasted about four hours.

When the patient was reexamined in the eye clinic eight months later, the findings were essentially the same as before. Visual acuity of the right eye was limited to light. The right pupil was larger than the left. Both reacted to light, but the right more slowly. Only the left eye converged; the right remained stationary. The fundi were poorly visualized; both discs appeared pale and irregular and the margins were indistinct. The vessels were narrowed and tortuous in both eyes. No exudate or hemorrhages were seen. The visual fields were restricted in the left eye, not ascertained in the right. There was no nystagmus, strabismus, ptosis, or lid lag. The sclerae were clear.

When seen by us four weeks later, the patient reported spontaneous improvement of vision in the amblyopic eye; with the right eye only she was able to count fingers and even to tell time by a wrist watch. The return of vision in the right eye persisted during the subsequent month of observation, until she left New York. No follow-up was obtained.

Monocular Diplopia

Three months after the onset of amblyopia and during the period of marked visual loss in the right eye, the patient first complained of double vision. When she reported this to us, the optical illusion had been present continuously for four days. Left-sided headache was again severe. The blindness of the right eye had been constant since the brief remission described above; only a small rim of dim vision for a moving object was retained in the extreme temporal field. When the right eye was covered and the patient looked steadily at a pencil held about 18 inches in front of her, she pointed to two separate pencils which appeared parallel and about one inch apart. She could not tell which image actually represented the object unless she tried to touch it with her finger. When the pencil was presented on the temporal side of the left eye, the false image was perceived to the left of the real image, and as the object crossed to the nasal side, the phantom shifted to the right of the true image (Fig. 4). The two images fused at a distance of about 4 feet from the subject. There was no nystagmus or strabismus. On ophthalmoscopic examination the changes were similar to those noted above.

Examination on this date again revealed trigger areas in the left trapezius muscle close to the angle of the neck. Three successive injections of procaine were made into this region, each of which induced the usual reference of pain to the left side of the head and once a crossed reference of prickling pain to the lobe of the right ear. Immediately afterward the lower half of the right ear became red and hot. There was no change in the diplopia.

A trigger area in the left sternomastoid muscle was then infiltrated, which induced an intense reference of pain around and in the left eyeball, and in the left frontal region as shown in Figure 5. About two minutes later, as the referred pain

caused by the insertion of the needle began to fade, the patient remarked that the room had suddenly become brighter, "as if a window shade had been pulled up." She then volunteered the information that she could see clearly. She could tell time by the wrist watch and could read newsprint. The diplopia had completely disappeared.

After this treatment she was free from double vision for two weeks, after which it recurred for short periods during about three weeks. She was

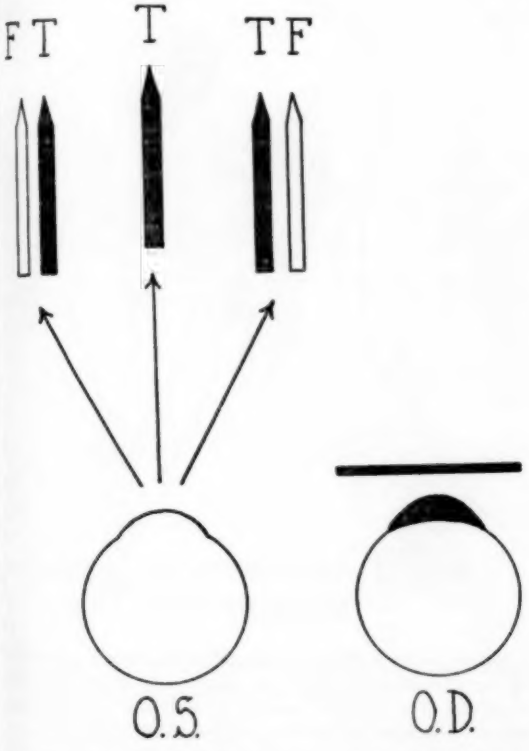

FIG. 4. *Case 2.* Position of true and false images seen with the left eye alone.

seen during this latter interval at a time when double vision was absent. On this occasion monocular diplopia was induced for about two minutes by insertion of the needle into the latent trigger area in the left sternomastoid muscle. At the end of this three-week period, when diplopia was again spontaneously present, procaine infiltration of this same trigger area immediately abolished the optical illusion. It did not recur during the subsequent five and one half months of observation.

During the last month of observation, the complaint shifted from head and eye symptoms to pain in the chest and arm. Intermittent pain of moderate intensity had been present in these regions for some time, but it now assumed major proportions. Pain was apparently mediated by trigger areas in the muscles of the shoulder girdle, and was associated with marked limitation of motion at the shoulder joint and with coldness, sweating and contractures of the hand. Time did not permit adequate investigation of this syndrome.

Comment

In this case, two patterns often observed in hysteria (1, 7), namely, intermittent amblyopia and monocular diplopia, were shown to be mediated by afferent impulses from trigger areas in the

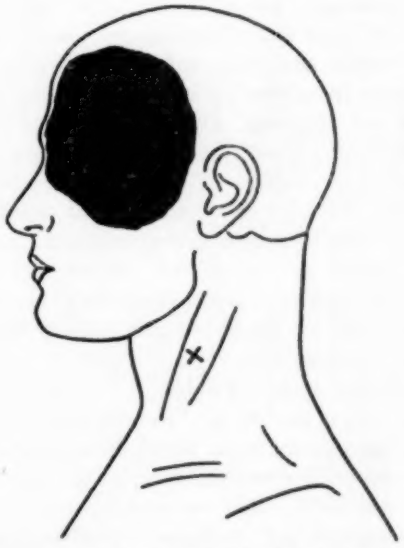

FIG. 5. *Case 2.* Distribution of referred pain induced by infiltration of a trigger area in the left sternomastoid muscle, which apparently mediated the monocular diplopia. Block of this trigger area was followed at once by disappearance of this optical illusion.

skeletal muscles, since local block of specific trigger areas either temporarily or permanently abolished these phenomena. In addition, like the respiratory tic in Case 1, monocular diplopia was momentarily produced by stimulation of the appropriate trigger area in the sternomastoid muscle at a time when the trigger mechanism existed in a subclinical or latent stage of activity.

The possibility that suggestion played a significant role in the abolition or production of the double image seems unlikely. It should be noted that when the source of the noxious impulses concerned in this pattern was first discovered in the sternomastoid muscle, we ourselves had no idea that this visual dysfunction might be mediated by a specific trigger mechanism. Treatment was undertaken for headache, and the initial injections

into the trapezius muscle just prior to infiltration of the sternomastoid may be regarded as controls; these showed that the injection procedure together with severe referred pain in the head, similar in pattern to that shown in Figure 3, failed to influence the diplopia. Similarly, in the case of the amblyopia, local block of the trigger areas in the levator scapulae muscle (which on stimulation produced transient scotoma), alone improved visual acuity. Thus, the dependence of both amblyopia and monocular diplopia on peripheral stimuli in each instance from a specific somatic region is demonstrated.

The patterns of pain reference from trigger areas in the trapezius and sternomastoid muscles noted in this patient have been reduplicated many times in subjects in whom no basis for a diagnosis of hysteria was apparent. The total reference pattern from different parts of the sternomastoid muscle as mapped in a number of these individuals with headache, is shown in Figure 6. The anterior or sternal section of this muscle gives rise to pain referred largely to the frontal, orbital and facial regions; its similarity to the reference pattern from the sternomastoid muscle in this patient with monocular diplopia (Fig. 6) is evident. In addition, in this larger group of subjects, the induction of referred pain to the forehead and eye was frequently accompanied by transient visual disturbances, such as blurring of vision or dimming of the light.

It is noteworthy that on two occasions in this patient marked and prolonged vasodilatation appeared in the area of crossed reference of pain (the opposite ear) immediately after infiltration of trigger areas in the trapezius muscle. This type of observation confirms our experimental finding that increased amplitude of arterial pulsation in the reference zone follows local block somatic trigger areas which exhibit a high degree of activity (14).

Case 3. Glove-and-stocking paresthesia

The patient was a 55-year-old white housewife, with 3 children. Her husband was a policeman and spent a great deal of time out of the house, both at work and in recreation. She had been working in a store to increase the family income, but was obliged to give up her job because of a variety of subjective complaints, such as migrating pains in the neck, arms, and back, burning or tingling of the skin, "creepy feelings in the scalp like worms crawling," "terrific noises in the ears," a pounding sensation in the chest, and crying spells. Occipital headache was present only infrequently. Dizziness, nausea, and visual disturbances were absent. The patient would not admit that she was ever tired, although she was extremely meticulous and conscientious about all her work, and questioning revealed evidences of extreme fatigue.

One of her predominating symptoms was a sharp prickling pain which appeared intermittently and had in general a glove-and-stocking distribution. The prickling was usually most intense in the right hand and foot, where it was accompanied by a sensation of numbness. It sometimes involved the entire right side of the body except the head and neck (Fig. 7). Occasionally, it appeared only in the right gluteal region. At times a glove-and-stocking paresthesia was present on the left side only. Partly on the basis of this symptom, a diagnosis of hysteria was made.

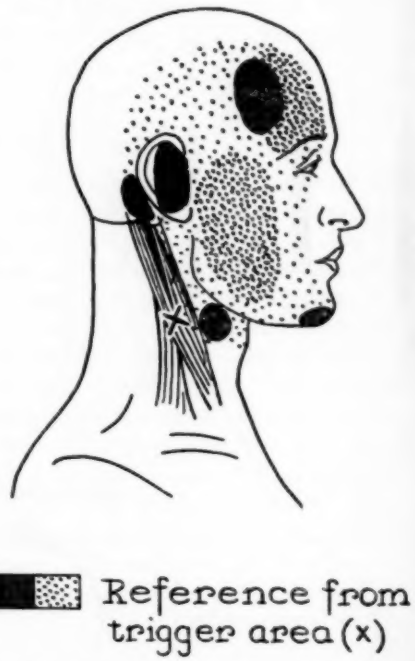

FIG. 6. Total pattern of pain reference from trigger areas in the sternomastoid muscle, as mapped in 28 subjects with headache. The anterior (sternal) portion of the muscle gives rise to pain referred chiefly to the frontal and facial regions, and the posterior (clavicular) portion chiefly to the ear and mastoid area.

The menopause occurred at the age of 50 years, and was not remarkable. There was a history of asthma in the past, of "rose fever" every June, and of a possible allergic reaction to procaine.

On examination the patient appeared highly emotional and wept easily. She never gave a direct answer to a question regarding her symptoms. She could not pay attention to more than one thing at a time. General physical, neurologic, and special examinations of the ear, nose and sinuses were negative.

Palpation of the neck and shoulder muscles revealed localized spots of extreme tenderness from which predictable patterns of referred pain were elicited by pressure. At each of five visits the presence of a trigger mechanism was demonstrated for the glove-and-stocking paresthesia. The trigger area for this pattern was located in the suboccipital muscles about one inch medial to the tip of the mastoid process. At one visit, pressure at this site on the right side repeatedly pro-

duced a momentary prickling pain on the homolateral side of the body (see Fig. 7); on four other occasions it produced fragments of this total reference pattern, usually a prickling perceived in the right lower extremity. On two occasions, a similar reference of prickling pain was also produced in the left leg by pressure on a similarly located trigger area on the left side of the neck.

Owing to the history of allergies and the emotional reaction of the patient to injection therapy, these trigger areas were not infiltrated.

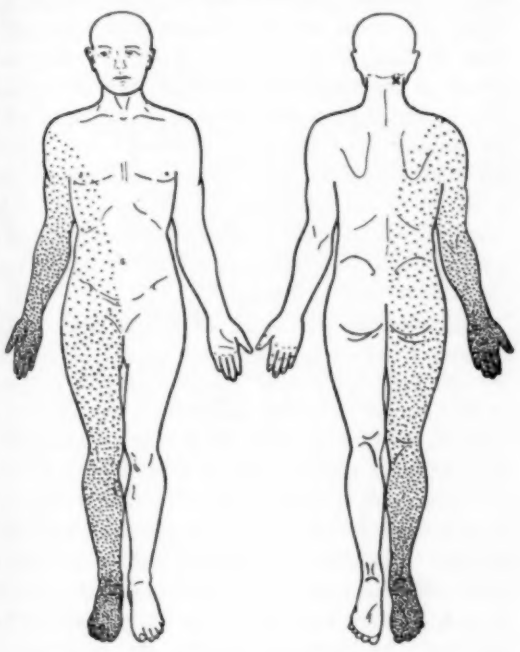

FIG. 7. *Case 3.* Distribution of prickling pain repeatedly elicited by stimulation of a trigger area in the right suboccipital region.

Comment

Glove-and-stocking paresthesias similar to those seen in this case have been observed in 5 subjects with headache, in whom a diagnosis of hysteria was not entertained. In each case, a trigger mechanism was present in the suboccipital region, which usually gave rise to a homolateral reference of prickling pain. In one subject, however, (Fig. 8) pressure on such a trigger area on one side repeatedly induced a pin-and-needle sensation perceived all over the palms of both hands and the soles of both feet simultaneously. The insertion of a needle into this area set off a momentary violent prickling, like multiple needling, limited to the soles of the feet; there was no concomitant reference of pain to the head or any other part of the body. Local infiltration with procaine at this time abolished the trigger mechanism at this site; there has been no recurrence of the glove-and-stocking paresthesia to date (two years).

In another patient with headache the insertion of the needle into a trigger area in this region, prior to procaine infiltration, was attended almost at once by an intense reference of pain to the head, vomiting, and prickling pain distributed throughout the homolateral side of the body, especially in the extremities. The infiltration was stopped. Unfortunately, neurologic changes appeared which have been permanent, and which were attributed to the sudden closure of branches of the arterial tree stemming from the vertebral artery, namely, the posterior spinal and inferior cerebellar arteries. One interpretation of this course of events is that the incomplete block of high intensity impulses from the trigger area in the suboccipital musculature following its stimulation by the needle resulted

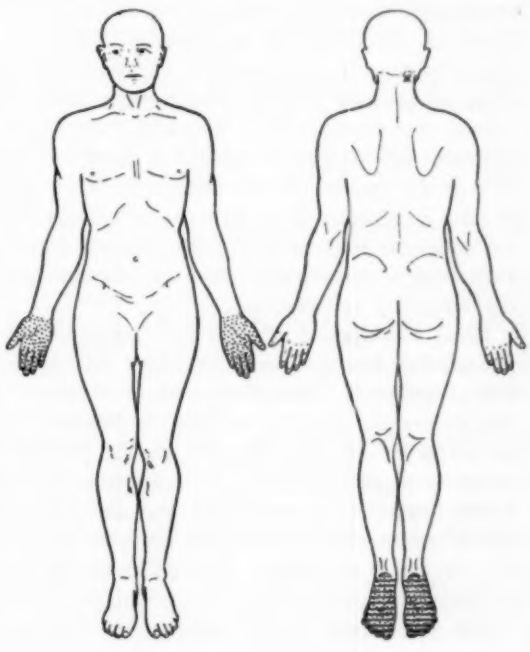

FIG. 8. Pattern of prickling pain reference from a trigger area similarly located in the suboccipital region in a patient with headache, in whom a diagnosis of hysteria was not entertained.

in intense localized vasospasm in parts of the brain and spinal cord which may be regarded as reference zones for this specific trigger area.

DISCUSSION

The amenability of the hysterical patterns to suggestion is so universally recognized that their sudden disappearance after any procedure regarded as nonspecific therapy is often accepted a priori as proof of the diagnosis of hysteria. Although it might be argued that the effects of stimulation and block of somatic trigger areas in these cases were wholly due to suggestion, our data seem to us to indicate that suggestion played a minor, if any, role in the results. If this factor can be excluded, it is clear that each of the patterns of hysteria which we observed was mediated by afferent impulses from trigger areas located at a specific site within the voluntary musculature.

Local blocking of such somatic trigger areas is not offered, however, as a "cure" for hysteria. Although particular symptoms may be abolished by this procedure, if their removal is indicated, this is usually followed by a transfer and the prompt appearance of new patterns. It is apparent that the rational therapy of hysteria does not depend on the individual treatment of "the host of ailments" (8) which it comprises, but rather on adequate psychotherapeutic care of the patient as a whole.

The importance of our observations lies in the demonstration of *one* physiologic mechanism to correlate the neurologically dissimilar, but repetitive, patterns of hysteria. In answer to the frequent question, "What is common to all the hysterical phenomena, in spite of their enormous differences?" (8), our data suggest that the common denominator is the noxious stimulus from abnormal foci, or trigger areas, which develop in the somatic musculature at least in part as the result of psychogenic stress, and which give rise to reflex vasoconstriction with partial ischemia in localized areas of the brain, spinal cord, or peripheral nerve structures.[1]

This hypothesis is based on the concept that specific regions of the nervous system may behave as reference zones for somatic trigger areas, and are thus subject to the same localized vasomotor responses as are somatic reference zones. This implies that the vasospastic process can be sharply limited to small segments of the arterial tree, and offers an explanation for the enigmatic localization of many of the patterns of hysteria. Thus, constriction of the posterior spinal artery or its branches could result in a bizarre, glove-and-stocking type of sensory defect by causing ischemia of the afferent tracts in the posterior columns of the spinal cord (19). Monocular diplopia might be produced by ischemia of the occipital lobes or of the central visual pathways, since organic lesions in these areas of the brain are known to result in this optical illusion (1). These inferences are in harmony with the conclusions of Karl, Peabody, and Wolff (9) that vasospasm in the Gasserian ganglion, reflexly induced by somatic trigger mechanisms, is responsible for the periodic pain and other phenomena of trigeminal facial neuralgia. Furthermore, it is known that in the hysterical syndromes bleeding may not occur when anesthetic areas of skin are punctured with a needle, a fact which implies a high degree of vasoconstriction and ischemia.

The experimental work of Bronk and his collaborators (3) on isolated nerve structures indicates that the effect of *partial* ischemia may be sufficient to abolish the reversible conduction responsible for organized function, but insufficient to abolish the revivability of nerve tissue. The borderline between such reversible disturbances of conduction and irreversible organic changes due to anoxia must be very narrow. Therefore, if one is dealing in hysteria with reflex vasospasm and ischemia of the nervous system, it is not surprising that the patterns of this disorder often simulate the signs and symptoms of organic disease. As noted by Harrington (7), the difference between a transient visual disturbance of psychogenic origin, such as amaurosis fugax, and the permanent visual loss of angiospastic retinopathy is only a matter of the degree of vasospasm. Such a state of partial ischemia reflexly maintained by somatic trigger mechanisms would also account for the fact that in hysteria function can be completely destroyed for long periods of time and yet be restored to normal almost at once by the blocking of noxious impulses from somatic trigger areas. The ensuing release of vasospasm, and even active vasodilatation, in the corresponding reference zones in the central or peripheral nervous system would be the determining factor in the disappearance of these hysterical patterns.

Analysis of various pain syndromes associated with somatic trigger mechanisms (10, 12, 16) indicates that the long-lasting character of these disturbances derives from the "vicious cycle" to which these abnormal foci give rise. Thus a *self-sustaining* circus movement of nerve impulses which involves

[1] If the dissociated personality disorders are to be regarded as patterns of hysteria, it should be noted that we have had no experience with this type of phenomenon.

the central nervous system comes into being. Furthermore, it is apparent that *brief* interruption of this autogenic cycle at any point in the chain may be effective in *permanently* abolishing it. It follows as a corollary that in the patterns of hysteria raising the thresholds of excitability at the synapses in the central nervous system directly, as by general anesthesia, hypnosis or suggestion may be expected to accomplish the same result as blocking the source of noxious impulses at the somatic trigger areas.

CONCLUSIONS

1. Our data indicate that each of the patterns of hysteria which we observed was mediated by afferent impulses from trigger areas located at a specific site within the voluntary muscles, because:

a. When the somatic trigger mechanism was of high spontaneous activity and the pattern present, local block of the specific trigger areas immediately abolished it.

b. When the somatic trigger mechanism was clinically latent and the pattern absent, mechanical stimulation of the particular trigger areas concerned in the phenomenon momentarily reproduced it.

c. Only infiltration of the specific trigger areas which mediated the pattern influenced it. No change in the disorder was caused by induced activity or local block of trigger areas in adjacent muscles.

2. Our data indicate further that similarly located trigger areas produced the same pattern of clinical effects whether the trigger mechanism was activated in one person chiefly by psychogenic stress or in another person by some other factor such as physical trauma.

3. This fact implies that the reduplication of the strange patterns of hysteria from patient to patient is due to the activation of specific neural pathways.

4. The concept is advanced that high intensity stimuli from somatic trigger areas reflexly produce prolonged vasoconstriction with partial ischemia in *localized* areas of the brain, spinal cord, or peripheral nerve structures. These effects of noxious impulses from somatic trigger areas provide a single basic physiologic mechanism to correlate the seemingly unrelated patterns which coexist in the hysterical syndromes.

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A Rorschach Tension Score and the Diurnal Lymphocyte Curve in Psychotic Subjects

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A SIGNIFICANT difference between psychotic and normal subjects in the diurnal variation of numbers of circulating lymphocytes has been reported by Elmadjian and Pincus (4). The mean curves of the psychotic subjects showed a smaller rate of increase in the number of circulating lymphocytes during the day. Nevertheless, the variability in the diurnal rise indicated some overlap of the two groups of subjects. One of the 6 normal subjects showed an aberrant rise, and 2 and possibly 3 of the 6 psychotic subjects gave diurnal curves which could be considered as being within the normal range.

Thus some of these psychotics show curves which overlap the normal range and the question is raised as to the significance of this variation in diurnal rhythm. Comparison of individual lymphocyte curves with the clinical state of the psychotic patients suggested that steepness and erraticness of diurnal rise in lymphocyte count might be related to the handling of emotion at the psychologic level. Some Rorschach test factors have been used as measures of emotional responsiveness and it was thought possible that the variations in the number of circulating lymphocytes might be related to some of these test factors.

Diurnal lymphocyte curves (LDR) and Rorschach tests were available on all patients reported in this present study. The latter were examined to see if they could in fact provide an objective measure of a person's affectivity. Out of this analysis a technique of Rorschach analysis was obtained; a measure which was felt to reflect the state of affectivity or emotional "tension" clinically present in a subject. Tension here is assumed to be a composite of the intensity and direction of emotional drive, plus the degree of acceptance or nonacceptance of such drive. This paper presents the relationships observed between this Rorschach tension score and some aspects of the LDR.

A number of methods of analysis of the Rorschach were tried to develop a method of measuring tension. It seemed obvious that a color score as a measure of affective reaction should enter into any measure of tension, for responses using color have always been considered the most direct measure of the affective life by all Rorschach workers. However the usual system of color scoring was found not to be adequate. Patients with much color use were sometimes found to lack tension, at least overtly, and to have a rapid, even rise in LDR such as has been found in normal subjects (4). An analysis of the content of the Rorschach responses which involved color use revealed characteristic differences between those with disturbed LDR and those showing regularity in rise of lymphocyte count. In general the difference is this: Patients with disturbance in the LDR tend to give color responses which show much "drive," much initiative in dealing with the world. These are responses such as "blood" or "fire." Patients showing a rapid, even rise in LDR are at the other extreme in the use of color. Two types of color use are frequent among such patients, 1) color naming (or color description) indicative of flattening in the affective sphere, and 2) "food" responses using color, such as "beef-steak" or "tomato." These latter reveal a basically demanding and dependent orientation, although impulsive behavior may be a method of expressing this essentially passive attitude.

The color responses of the first group of 11 patients treated by insulin coma were arranged along a continuum to reflect more or less "drive." At the low end of the continuum were placed those responses such as color naming and food responses, consider to be a negation of affective drive, and at the other, "blood" and "fire" interpretations. Color responses which were neutral in regard to "drive," such as "water" and "jelly-fish," were more centrally placed. Finally a quantitative scoring system was developed with these neutral responses being given a score of zero. Then the common color responses such as "a red butterfly" were scored +1.0. By this method of classification a scoring system for affective drive was developed which

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TABLE 1

SCORING SAMPLES FOR THE CONTENT OF RORSCHACH COLOR RESPONSES

Score	Free association period	Inquiry
+3.0	"Blood," "fire"	.....
+2.0	.....	"Blood," "fire"
+2.0	1. Stress or danger responses: "toothache," "pain"	.....
	2. Indirect representation of blood or fire: "red hot stones," "menstruation"	
+1.0	.....	1. Stress or danger responses
	.....	2. Indirect representation of blood or fire
+1.0	The common color responses: "a colored butterfly"	.....
+0.5	.....	The common color responses
+0.5	Semi-interpretative color responses: "a man's head, encircled in yellow," "green streak shooting up," " a broken-up cow with red stuff on it"	.....
0.0	Formless color responses: "water," "sky," "jellyfish"	.....
−0.5	.....	Color description: "red color," "blue ink," "red don't go good with yellow"
−1.0	.....	1. Color naming: "red, green, pink"
	.....	2. Food responses: "beefsteak," "apples," "jelly and stuff"
−1.5	Color description: "orange and red tint," "blotches of everything," "green, yellow and all sorts of things"	.....
−2.0	1. Color naming: "red, blue, green"	.....
	2. Food responses: "beefsteak"	.....

ranged from −2.0 to +3.0. Table 1 outlines the scoring method. A subject's "drive" score is the algebraic sum of the scores obtained in this manner from all of the color interpretations in his Rorschach record.

Although tension implies affective drive, the two are not synonymous. Two other Rorschach factors were added to round out the measurement of tension. The first of these was the number of cards rejected. The rejection of cards on the Rorschach occurs more frequently to the colored cards and implies interpretatively that affective drives are being inhibited from overt expression. An internal state of tension can then be hypothesized. The rejection score is simply the number of cards rejected.

The final aspect of the tension score is based on the percentage of perseveration present in the Rorschach record. Perseveration is conceived of clinically as a measure of the dulling of reaction to stimuli; as such, it is treated here as the opposite of "drive." That is, the perseveration score is subtracted from the combined sum of the "drive" and rejection scores. The perseveration score is derived in the following manner. If a scorable response is repeated identically, even if on a later card, a score of 1.0 is given to the second interpretation. If it is repeated a third time, a score of 1.0 is again given, and so on. More than one content can be scored for perseveration. If a response content contains two major elements and only one of these is perseverated, the perseveration score is only 0.5. For example, if the response, "hipbone of a woman" is repeated in a record, this repetition is scored 1.0; but if only "hipbone," or "hipbone of a man" is given as another interpretation this is scored 0.5. If a response given as a new interpretation occurs in the Inquiry, and this is a virtually identical perseveration of a previously elicited response, the score is 0.5; it is probably unnecessary to score partly perseverative responses occurring in the Inquiry. The final perseveration score has been calculated on the following basis:

$$\text{Perseveration Percentage} = \frac{\text{Number of perseverated responses}}{\text{Total number of responses}} \times 100$$

The perseveration score is derived according to the following table:

% Perseveration	Perseveration score	% Perseveration	Perseveration score
0–4.0	0.0	27.5–32.0	3.0
4.5–7.0	0.5	32.5–37.0	3.5
7.5–12.0	1.0	37.5–42.0	4.0
12.5–17.0	1.5	42.5–47.0	4.5
17.5–22.0	2.0	47.5–52.0	5.0
22.5–27.0	2.5	etc.	

As stated above this perseveration score is subtracted from the combined sum of drive and rejection scores to give the final tension score. The tension score is thus assumed to be a composite of the intensity and direction of drive, plus the degree of acceptance or nonacceptance of such drive.

TABLE 2

A Sample Tension Score from the Rorschach Test of Subject L. T.

	"Drive" color score	Rejections	Perseveration score	
I. (15″) Looks like a bat. (What else?) (Rubs his face.) (62″) Has claws, 2 claws, claws, bat, (Encouraged.)	..	..	..	1. Bat. Just a minute (edge tendency). See something else there now—something — yeah, disregarding other things, a body (D4). Lower part of the body, more or less a dress. Two claws or hands you could call them (D1). There's sort of a split down dead center. A split, split, split, a belt (Dd27). Looks like almost anything, couldn't it? What do you know. (Nods head.) (Yes?) (Long pause.) Don't you want to hear about it? (Of course.) I'd like to tell you (intently). (Yes?) It's confidential, I wouldn't want everybody to know. (Long silence, gets up, hands back the card.) I'd like to tell you but it's confidential. (Rorschach was finished: began Inquiry with card X and went back to I.)
II. (20″) Can you reverse them around? (Turn it any way.) (20″) Two rabbits, apes, rabbits.	..	..	..	II. (D1). Ears (Dd31). Face, lower half of D1. The way their backs are.
Colored red, ah, *fire* or something like that.	3.0	..	..	Fire. By the way, this here is blotched here (D3). This here is a different kind of fire (D2), sort of an innocent type, different type. What else can I see (laughs). Can see almost anything you want to see.
III. Colored people (laugh) funny way —look at things—two sides to everything.	..	..	..	III. Heads (D4), like cannibals; like I saw in travels once, just heads (edges for about 20″ intently). Kind of a man (D1) on both sides. Call them roosters, hens too, look more like roosters, have a long neck.
Couple of roosters—some sort of *colored people* (laugh).	..	..	1.0	
IV. (25″) *Have a body here, spine.* Could be, yeah. An animal, funny type, has two eyes.	..	..	..	IV. (Spine?) Funny, there's two eyes there, see? Animal, flame thrower, part of the body (Dd30), bottom part. (Lower center) Dragon, could be anything, see anything. Side view, two witches picking at the dragon's body (shading in sides-bottom). See a shoe (D2) on each side, sort of a woman's shoe.
V. (53″) Some kind of a (sigh) 1 head, 2 ears, 2 wings, feet.	..	..	..	V. Let's see, let me look at it (laugh). Pretty good. (Looks like?) A man (D7), a bat, the leg, wings, blotches (apparently W). Could be almost anything, looks like a devil with wings (W).
VI. (73″) Could be a cat, could be almost anything.	..	..	..	VI. The head, whiskers, could be something else too. (Yes?) (D3) Medical, germs, call it, way it's designed, on a plane more or less flat, different views on different objects (D4).

TABLE 2.—CONTINUED

	"Drive" color score	Rejections	Perseveration score	
VII. (Holds card far from him.) This is pretty good (laugh). (73″) Yeah. (Turns card upside down in pile.) (See anything?) (Just picks up VIII and says nothing.)	..	1.0	..	VII. (Looks like?) Additional: part of the body. Woman's body, right there, the lower part. (D6 particularly, and possibly some of D4's.)
VIII. (63″) Couple of animals on each side here. Funny about these, take it any way you want to (uh huh). Person. (Plays with card.) (84″) Medical, pertains to the *body backbone*, broke section. *Blue, pink, shades.*	..	..	..	VIII. Funny, very funny (Animals?) (D1, points.) (Living or dead?) Living. (Doing?) They're in a picture. Medical all the time (center all the way through the blot plus D3). Spine, nerves. (Edges, sighs.) Almost anything out of it.
	..	..	0.5	
	−2.0	..	..	
IX. (70″) This way? (Any way. *Volcano eruption.* Could call it something else. *Spine of body.* Twist it around this way and that way, whew! (Edges slowly at first then very obviously. Edges again, plays with edges.) I don't know. (Looks on back.)	2.0	..	..	IX. Something else too, the way it's described to be. (Volcanos, what suggests it?) (Points to D6.) Eruption, exploding, body, volcano, force, heat, flame (apparently now referring to W). Spine here (D5 plus center at bottom). Additional: section of a cloud (D6).
	..	..	1.0	
X. (55″) This one here, last one, (Looks on back.) (45″) Looks as though something has been taken apart (55″). Call it a *body.* Look at it another way, call it a *torch.* You're not in a hurry are you?	..	..	0.5	X. Body, parts of it. Looks (pause) stomach section (D9). Flame (D9), torch (D11). Take it that way. Additional: (D10), bird in cuckoo clock.
	2.0	..	..	

The percentage of perseveration is 17, for which a perseveration score of 1.5 is obtained.
The tension score is derived as follows:

"Drive" Color Score	= + 5.0
Rejections	= + 1.0
Perseveration Score	= − 1.5
Tension Score	= + 4.5

The LDR was taken over three consecutive days. Blood samples were taken from the ear lobe in the manner indicated previously (4). These were taken at 8 A.M., 11 A.M., 4 P.M., and 10 P.M., on each subject on each of these three days. The rise and variation of each day's count were calculated separately for each day by the method of least squares; slope being a measure of rise, and the standard error of estimate of the goodness of fit (σ_{xy}) being taken as the measure of variation, *i. e.*, erraticness in rise during the day. This latter value indicates the limits within which two-thirds of the Y values (lymphocytes/cu. mm.) will fall for each value of X (time). In this case it indicates the dispersion in the number of lymphocytes expected about a given point of the calculated slope curve.[1] Figure 1 is a sample graph for the LDR of one of the subjects. The average slope in lymphocytes/cu. mm./hr. and the average σ_{xy} for the three days of counts were calculated for each subject.

[1] GUILFORD, J. P. *Psychometric Methods.* New York, McGraw-Hill, p. 301.

SUBJECTS AND PROCEDURE

Fifteen male psychotic patients, who were chosen for insulin coma therapy, are the subjects of this study.

Thirteen of these were schizophrenic, and included all the recognized subtypes. These were: 1 simple, 1 hebephrenic, 1 catatonic, 4 paranoids, and 6 "other types." The remaining two subjects were 1 paranoid condition, and 1 psychosis with psychopathic personality, pathological emotionality. Nine of these patients had never been hospitalized previously and only 1 had as many as 2 previous admissions. The length of present hospitalization ranged from one month to three years, the average approximating eight months. In general they represented an early period in psychosis. Their age range was from 18 to 40 years with a mean of 28.7 years. The data are summarized in Table 3.

Seventeen patients in 2 groups were selected for treatment, but in the first group 2 patients out of the 11 then on insulin treatment had to be dropped for lack of complete data. It was on the remaining

9 subjects in this group that the relationship between the Rorschach tension score and LDR was first tested. Later another group of 6 male psychotics was added. These 2 procedures were part of a large battery of physiologic and psychologic tests administered for research purposes to all 17 of these patients. The first group of 11 patients was treated in the fall of 1945. The other 6 began treatment early in 1947.

Two weeks of physiologic and psychologic test-

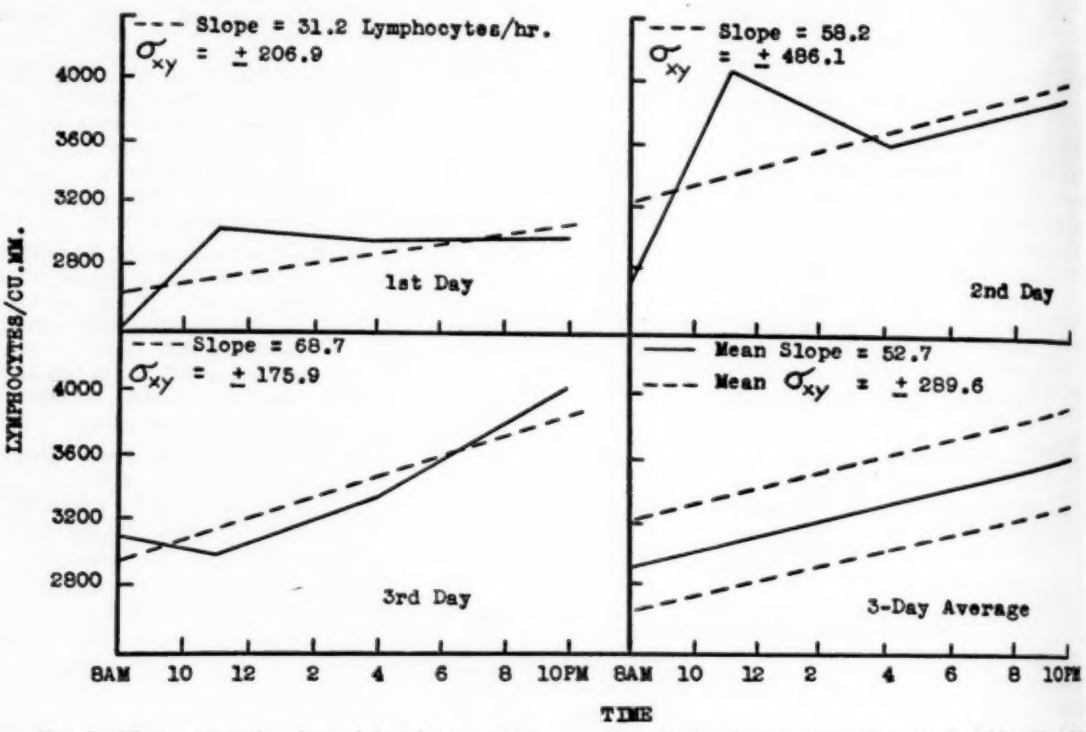

FIG. 1. Three consecutive days of lymphocyte counts on subject R. L. Counts were taken at 8 A.M., 11 A.M., 4 P.M., and 10 P.M. The mean slope and mean standard error of estimate of the goodness of fit were calculated in this manner for each subject. The three-day averages are listed in Table 4.

TABLE 3

CLINICAL DATA FOR EACH SUBJECT

Subject	Diagnosis	Age	Previous hospitalization	Length of present hospitalization	
				Years	Months
1.	Dementia præcox simple	20	0	..	3
2.	D. P. other types	28	0	..	2
3.	D. P. catatonic	24	0	..	10
4.	Paranoid condition	33	0	..	2
5.	D. P. paranoid (chronic)	30	1	..	7
6.	Psychopathic personality with psychosis. Pathological emotionality.	26	0	3	0
7.	D. P. hebephrenic	33	0	..	7
8.	D. P. paranoid	24	0	..	8
9.	D. P. other types	24	2	..	3
10.	D. P. other types (acute schizophrenic turmoil)	18	0	1	1
11.	D. P. other types	34	1	..	9
12.	D. P. paranoid	33	1	..	3
13.	D. P. other types	34	1	1	4
14.	D. P. paranoid	30	0	..	2
15.	D. P. other types	40	1	..	1
Mean		28.7	.47	..	8.1
Range		18 yrs. to 40 yrs.	0 to 2	1 month to 3 yrs. 0 mos.	

ing occurred before treatment began. The Rorschach was taken during the first of these weeks, the LDR in the second.

RESULTS

The average slope for each subject's LDR has been plotted against his Rorschach tension score. This is illustrated in Fig. 2. The product moment correlation between these two scores is −0.52, which is significant at the 5 per cent level of confidence. That is, the higher the tension score the less the average rise in lymphocyte count during the day.

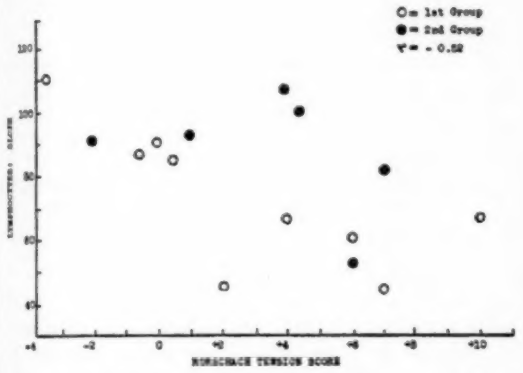

FIG. 2. Rorschach tension scores and the average of three consecutive days in the diurnal rate of increase in lymphocyte count (slope). Slope is measured in terms of the hourly rate of increase in the number of circulating lymphocytes per cu. mm.

The standard error of estimate of the mean LDR for each subject was similarly correlated with his Rorschach tension score, and was found to be 0.50, which just misses significance at the 5 per cent level. Figure 3 is a scatter diagram of this relationship.

In order to obtain a composite score reflecting these two aspects of lymphocyte diurnal rhythm activity (diurnal rise and variability) the three-day average slope scores and the average variation scores were each converted into standard deviational units (sigma scores). These were obtained independently for each subject on both mean slope and standard error of estimate. The correlation between these two sets of sigma scores is only −0.17 indicating a lack of significant correspondence between these two measures. Since the slope has a negative relationship with tension score, sigma score signs had to be reversed before these could be added to the sigma scores of the standard error of estimate. This composite LDR score is plotted against the Rorschach tension score in Fig. 4. The product moment correlation here is 0.67 which is significant at the 1 per cent level of confidence. It is interesting to note that the 6 cases chosen as the second group to undergo insulin treatment (Fig. 4, black circles) follow approximately the same relationship to tension score as does the earlier group of 9 cases upon whom the method was worked out.

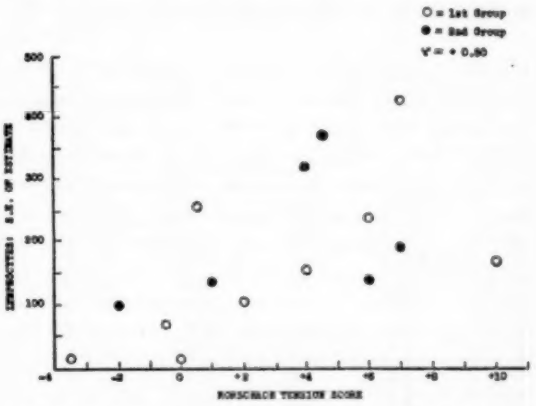

FIG. 3. Rorschach tension scores and the average for three days in the standard error of estimate of the goodness of fit for the diurnal lymphocyte count slope. The standard error of estimate is used as a measure of the erraticness in the increase in count during the day.

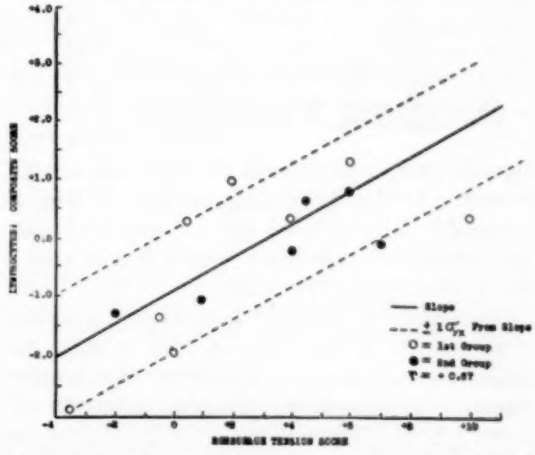

FIG. 4. Rorschach tension scores and a composite lymphocyte score. This composite score is the sum of each subject's slope score added to his standard error of estimate of the goodness of fit. These were first converted into standard scores, and signs reversed for slope scores due to their negative correlation with tension scores.

DISCUSSION

The correlation of 0.67 between the composite index measure of LDR and Rorschach tension score

is indicative of a close relationship between psychologic tension or affectivity and variation in lymphocyte count. A correlation at this level, in fact, has a coefficient of determination of 0.44. That is, 44 per cent of the variability in combined slope and erraticness of lymphocyte counts is ascribable to variation in the state of psychologic tension. The adrenal cortex is at fault in psychotics since 1) psychotics generally give no evidence of Addisonian levels of adrenal cortical hormone secretion or excretion and 2) about half of these psychotics do respond to sugar administration by a lymphocytopenia.

The differences observed in the response of the

TABLE 4

SUMMARY OF RORSCHACH AND LDR FINDINGS

Subjects	Rorschach Findings: Color drive score	No. of rejections	Perseveration score	Tension score	Lymphocyte Data (3 day average): Mean slope	Sigma score of slope	Mean variation (σ_{xy})	Sigma score of variation	Composite LDR score
1	3.5	0.0	7.0	−3.5	110.3	+1.51	194	−1.37	−2.88
2	0.0	0.0	2.0	−2.0	91.8	+0.62	261	−0.67	−1.29
3	−0.5	0.0	0.0	−0.5	87.5	+0.41	234	−0.95	−1.36
4	0.0	1.0	1.0	0.0	90.5	+0.56	194	−1.37	−1.93
5	1.5	0.0	1.0	+0.5	85.5	+0.32	388	+0.66	+0.35
6	1.0	0.0	0.0	+1.0	93.2	+0.69	290	−0.36	−1.05
7	2.0	0.0	0.0	+2.0	44.8	−1.64	263	−0.64	+1.00
8	4.0	1.0	1.0	+4.0	107.1	+1.36	434	+1.14	−0.21
9	4.0	0.0	0.0	+4.0	66.7	−0.59	303	−0.23	+0.36
10	5.0	1.0	1.5	+4.5	101.1	+1.02	484	+1.66	+0.65
11	1.0	5.0	0.0	+6.0	60.1	−0.90	371	+0.48	+1.39
12	6.0	0.0	0.0	+6.0	52.7	−1.26	290	−0.37	+0.89
13	8.0	0.0	1.0	+7.0	80.8	+0.09	329	+0.04	−0.05
14	7.0	0.0	0.0	+7.0	44.9	−1.64	525	+2.10	+3.73
15	9.0	1.0	0.0	+10.0	67.1	−0.57	312	−0.13	+0.44
	Correlation with tension score:				−0.52 [1]		0.50		0.67 [2]

[1] Significant at the 5% level of confidence.
[2] Significant at the 1% level of confidence.

larger proportion of shifts in the LDR remains unaccounted for by the present measure of tension. Presumably other psychologic and specifically biologic factors, such as sugar level (5) also play a rôle in determining the LDR.

Experiments on rats have demonstrated a parallel in the adrenal cortical reaction both to sugar administration and to stress in the form of a lymphocytopenia. This reaction is abolished upon adrenalectomy (2, 3). There is a similar parallel in the reaction of the adrenal cortex of normal subjects both to external stress situations and to sugar administration as measured by lowered levels of lymphocyte count (4, 5, 6). Psychotics on the other hand do not show this parallelism of adrenal cortical response pattern. Under external stress practically all of the psychotics show a lack of responsiveness of the adrenal cortex. This is indicated by either no change in the lymphocyte count or even by a lymphocytosis (7, 8), which is probably due to other physiologic factors. With hyperglycemia, however, half of the psychotics showed a lymphocytopenia (6).

It seems unlikely that the physiology of the adrenal cortex in the psychotic between hyperglycemia and external stress stimulation might be explained by the commonly observed unresponsiveness of the psychotic to the external environment. This is not to say that the psychotic is unaware of what goes on about him, but on the surface at least he does not appear to react in terms of the objective external situation so much as according to inner impulses. A psychologic tension state can be conceived of as just such a reaction to inner impulses, an intrapsychic stress situation to which the psychotic is directly responding.

One would thus be led to expect in the psychotic less responsivity under external stimulation than in hyperglycemia, which is a change in the internal milieu. Even in the latter case there is apparently still some interference with normal adrenal cortical activity owing to the tendency of the psychotic to respond in terms of his own inner impulses.

It is not surprising therefore to see a wide variation in count in the LDR consonant with a high Rorschach tension score. Such fluctuations in LDR possibly represent changes in the tension level, which may tend to disrupt the LDR. Those pa-

tients who fail to show these fluctuations and show relatively smooth rapid rises in lymphocyte count are those for whom the Rorschach test indicates a chronic state of apathy.

Similarly, an abnormally low rise in diurnal count may represent a chronic tension state, since such an internal stress reaction will operate to reduce the number of circulating lymphocytes. This will in part at least counter the normal increase in count through the day.

Elmadjian and Pincus (4) reported a reliable difference between the mean slopes of diurnal rise for normal subjects as contrasted with psychotic patients. The mean slope for the patients was less steep than for the normal subjects. This raises an interesting paradox. In line with the data presented here this would be indicative of greater average tension or affectivity among these psychotics, mostly schizophrenics, than among normal subjects; this, however, would contradict present-day psychiatric judgment which regards dulling in the affective sphere as one of the characteristics of schizophrenia.

When the Rorschach and lymphocyte data in each of these 15 cases are examined the problem appears in a somewhat different light. Those patients with a normal rise in lymphocyte count have low tension scores, *i.e.*, are lacking in tension or affectivity; whereas those patients who have an abnormal LDR have much tension. On the basis of an inspection of several normal Rorschach records, it appears that this higher level of tension or affectivity approximates the range of tension scores to be found in normal subjects. It seems very unlikely that any normal subject would score in the lower range of tension scores.

It is of course necessary to discover if tension scores carry the same significance for normal subjects as they do for psychotics. However, higher tension scoring among normal subjects is consistent with the psychiatric observation that normal people appear to show more emotional responsivity and seem to tolerate a higher level of tension than schizophrenics. A schizophrenic breaks down in situations that objectively seem no more traumatic than those in which a normal person continues to function. Further study of normal subjects with the combined use of Rorschach tests and diurnal lymphocyte counts is needed, but the present study suggests the following: for the same level of affectivity or psychologic tension the psychotic is far more erratic than the normal in his LDR. This implies that tension has different effects on the physiologic functioning of psychotics as contrasted with normals. It may be that only at much reduced levels of affective reactivity or tension do the variation in diurnal counts of psychotics approximate those found in the normal.

SUMMARY

The relationship between two aspects of the lymphocyte diurnal rhythm (LDR) and a "tension" or affectivity score derived from the Rorschach test is reported for 15 male psychotic (mostly schizophrenic) patients. The rate of diurnal increase in count (slope) and erraticness of that increase (standard error of estimate) were computed for each subject as an average of three days of lymphocyte counts. The mean slope has a product moment correlation of -0.52 with tension and the mean of the standard error of estimate correlates 0.50 with tension scores. A composite score for each subject of these two aspects of the LDR correlated 0.67 with the Rorschach tension score.

Comparison of the results of the present study with previous work suggests the following hypothesis. For the same level of affectivity or psychologic tension the psychotic is far more erratic than the normal in his LDR. It is only at much reduced levels of affective reactivity or tension that the diurnal counts of psychotics approximate those found in the normal.

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Psychosomatic Considerations in Peptic Ulcer

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MOST clinicians are impressed with the emotional elements in peptic ulcer. Many (9, 10, 12, 22, 34, 36) consider it to be a psychosomatic disorder. This approach makes understandable observations which previously were difficult to integrate into the accepted concepts of peptic ulcer. The oft-repeated admonition that the whole individual must be considered in managing the disease, and not just the stomach (6, p. 438; 11; 40, p. 177), thereby also becomes more readily realizable.

Over a two-year period 85 patients with X-ray and clinical evidence of gastric or duodenal ulcer were observed, studied, and treated by the author at the Bronx Veterans Hospital. The patients were veterans of World Wars I and II; one was a woman. From these studies it became apparent that all aspects of the disease were intricately bound up with the character structure of the patient. Psychosomatic considerations affected vitally every phase of peptic ulcer. In all the cases studied a common conflict was found; tension accompanied efforts to resolve this conflict.

THE SOURCE OF TENSION IN PEPTIC ULCER

Many (14, 19, 21, 23, 27, 36, 38) have noted recurrence of ulcer activity with the appearance of tension in the lives of ulcer patients. The character structure of the peptic-ulcer patient is such that when the proper stimulus presents itself, he becomes embroiled in a conflict which produces tension.

Alexander (1), Mittelmann and Wolff (21) and others have described the peptic ulcer conflict as developing from an unconscious longing for a dependent relationship and a reactive striving for assertive independence. In the present study the peptic-ulcer conflict was found to have begun in early childhood. The child seeks security by striving to meet rigid, exacting standards set up by the early authoritative figure, while at the same time anticipating failure because of a strong feeling of inadequacy. To allay his fear of failing, of losing his security, he struggles to perform precisely in the manner he feels is expected of him.

As the individual grows he continues to utilize the same pattern in seeking security but new circumstances in his life engender further developments. At adolescence strong investigative and creative urges emerge which he feels have to be suppressed; unconsciously he still harbors the compelling fear that his security is threatened if he pursues any but the goals that have been set for him. This is the source of conflict; resentment inevitably accompanies the need to deny and reject his own inclinations and fancies. In addition, the demands of society—representing security to him—appear to have become more elusive and unattainable than they were in childhood. Tension develops in his pursuit of security under these or similar circumstances.

Such a conflict, involving simultaneous feelings of fear and resentment, can also be described as "having to and fear of not being able to" or "must and can't." The striking feature of the ulcer patient, when he is caught up in such a conflict, is that he either physically tries to do what he fears is impossible or mentally wrestles with countless possibilities in an endeavor to discover the "proper" solution.

The ulcer patient never gives up trying to accomplish his set task. Frequently he continues until his ulcer symptoms or circumstances remove him from the conflict situation. Draper (11) describes his ulcer patients as forever striving to attain some goal notwithstanding difficulties which most men consider insurmountable.

Although the underlying conflict in the peptic ulcer patients studied has always been the same, the outward appearance and attitudes have varied considerably. Such differences depend upon the personality adjustments and defenses utilized and developed to solve interpersonal problems of which the ulcer conflict is an important part. Thus the ulcer patient may appear to be talkative, taciturn, cheerful, sullen, belligerent, meek, cocky, bashful, misanthropic, amiable, hyperkinetic, sluggish, bright, dull, aggressive, or unobtrusive.

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PSYCHOSOMATIC CONSIDERATIONS IN ETIOLOGY

The relationship between the emotions and physiologic function has been a gradually developing concept since Cannon's first experiments in this field. In 1932 Cushing (9) reported that several of his patients who had undergone operations for cerebellar tumors died of hemorrhage and perforation resulting from rapidly developing ulcers of the esophagus, stomach, and duodenum. He postulated that the operative procedure resulted in a disturbance in the balance of the components of the autonomic nervous system supplying the esophagus, stomach, and duodenum, and that emotions might effect a similar imbalance likewise resulting in ulceration.

Wolf and Wolff (40), working with their subject Tom, who had a gastric fistula, found during states of fear or depression a predominantly sympathetic stimulation resulting in gastric hyposecretion, hypomotility, mucosal pallor, and decreased mucin production. Emotions of resentment, anger and anxiety were found to be associated with hypersecretion of acid and pepsin, hypermotility, hyperemia, and increased mucin elaboration—predominantly parasympathetic effects. Where conflict involving both fear and resentment existed (39), a dissociation of response was frequently observed, resulting in hypersecretion of acid and pepsin, increased motility, and *decreased* mucin—a substance which ordinarily protects the mucosa from the erosive action of normal gastric juice. Such a conflict, then, results in physiologic changes that appear to be highly conducive to the development of erosion. Sustained emotional tension, productive of overactivity of the stomach, can eventually lead to ulceration (37).

Sandweiss and Ivy are investigating, each with his coworkers, two anti-ulcer substances, anthelone and enterogastrone, respectively. Anthelone (28) appears to promote fibroblastic proliferation, new formation of blood vessels and epithelialization. Enterogastrone (17) depresses gastric secretion and motility, and appears also to increase the resistance of the mucosa to ulceration. Shedding of columnar epithelium in the stomach has been described (15) as another protective device available to the mucosa. The resistance of normal gastric epithelium to erosion and of peptic ulcer to perforation in the presence of acid and pepsin are well discussed by Bachrach, Grossman, and Ivy (19).

It is conceivable that the effectiveness of protective substances and mechanisms may be reduced, just as is mucin, during a conflict involving both fear and resentment. If this can be proved to be so, the clinical fact that ulcer patients are found caught up in such a conflict just prior to development of symptoms would have an adequate physiologic explanation. Other evidence of autonomic nervous system imbalance, such as excessive palmar sweating, tachycardia, bradycardia, urinary frequency, spastic colitis, and mucous colitis, is very frequently present in cases of peptic ulcer and may persist even after disappearance of the epigastric distress.

It is not the autonomic nervous system disturbance alone, but the particular imbalance which occurs with the ulcer conflict situation that appears to favor development of ulceration. In normal people such a conflict situation may result in appearance of transient heartburn or epigastric distress which is relieved by milk and alkalies. But in the ulcer patient, the character structure is such that this conflict becomes sufficiently lasting and intense for him to develop actual ulceration.

PATHOLOGIC CONSIDERATIONS

It has been said that the individual ulcer can be cured but that the tendency to develop the disease cannot (16). Rienhoff (26) found evidence of multiple ulceration of the duodenum in 75 per cent of his 260 cases which were said to have come to gastric resection only after conscientious medical management had failed. Palmer and Schindler (24) found recurrence of ulcer in the same, adjacent, and neighboring areas of the stomach. They also reported gastroscopic observation of small, multiple ulcers which disappeared rapidly (one month).

From the psychosomatic point of view, the multiplicity of lesions found by these observers is readily explained by the usually diffuse nature of the gastric and duodenal response to the emotions. Local factors such as exist in the gastric pathway of the stomach (13) probably account for the development of an ulcer at a particular site. Prolongation of the peptic-ulcer conflict situation could effect the development of a mucosal erosion and its progression to acute, and then chronic ulceration.

The ulcer diathesis, which is the bane of the surgeon's existence (20), has, when considered psychosomatically, its origins in a character structure which becomes readily involved in the ulcer type of conflict over a relatively sustained period. Rienhoff (26) states that gastric resection, regardless of the extent, short of almost total gastrectomy, will not ensure against the development of jejunal complications, and he observes that the best results are obtained in cases with the lowest postoperative gastric acidity. Bockus ([6], p. 181) refers to the

ulcer patient with interdigestive hypersecretion and Grade 4 hyperchlorhydria as being most apt to have recurrences despite adequate medical or surgical therapy. Recurrent ulceration following a subtotal gastrectomy may be explained by the conflict situation persisting or reappearing in the presence of sufficient remaining acid- and pepsin-bearing glandular tissue.

Ivy *et al.* (8) state that there is no correlation between healing time, size of crater, recurrence, and duration of symptoms, and suspect that there is usually little difference between the potential rate of healing of the acute traumatic ulcer of the non-ulcer patient, and of the chronic lesion of the peptic-ulcer patient under proper conditions of therapy (4). These findings could well be accounted for by assuming that physiologic changes favoring prompt healing (three and four weeks) also result when the conflict situation is removed, even in large-sized, apparently indolent, chronic peptic ulcers.

CONSIDERATIONS IN CLINICAL PATHOLOGY

The gastroscope has disclosed many unexpected findings. Schindler ([32], p. 179) notes that 50 per cent of all his patients gastroscoped had some evidence of chronic gastritis. Furthermore, mucosal hemorrhages and erosions (*ibid.*, p. 148) were occasionally found in otherwise perfectly normal mucosæ; the mucosa surrounding ulcers was often inflamed and edematous, although frequently the surrounding mucosa was normal (*ibid.*, p. 162). The inflammation about the ulcer usually seemed to subside long before the ulcer healed (*ibid.*, p. 168). Hemorrhages in "superficial gastritis" consisted of small, dark red spots lying in an edematous mucosa (*ibid.*, p. 184). Small erosions and acute ulcerations were frequently seen in cases of chronic gastritis, but they disappeared quickly.

There is a striking similarity between these mucosal appearances and those seen in the stomach of Wolf and Wolff's subject Tom, when he was experiencing emotions of anxiety, hostility, and resentment of long standing, at which time he developed edema, hyperemia, and petechial hemorrhages ([40], p. 173). Wolf and Wolff state that the extent of gastric hyperactivity and secretion is roughly proportional to the intensity and duration of the emotions experienced (*ibid.*, p. 129).

Gastroscopic examination of a patient with gastric ulcer shortly following the disappearance of the ulcer type of conflict would reveal an ulcer with surrounding mucosa of normal appearance. The frequency of sustained emotions, embracing anxiety, hostility or resentment, probably accounts in large measure for the high incidence of "gastritis" observed, particularly when one appreciates, without too great a stretch of the imagination, that having the gastroscope shoved down one's esophagus could arouse anxiety or resentment. The response of the stomach to the emotion is instantaneous, just as is pallor during fright (*ibid.*, p. 112).

Schindler cites two pieces of evidence to dispute the psychosomatic origin of most cases of ulcer. Firstly ([32], p. 168), he states that he has never observed a chronic ulcer develop in an area of hypertrophic gastritis, although acute ulcers do. Secondly (*ibid.*, p. 190), a number of patients suffering from severe psychogenic disturbances associated with varying acidity had perfectly normal gastric mucosa gastroscopically. However, before this evidence can be evaluated properly, the nature of the emotions experienced by these patients while being gastroscoped would have to be known. Furthermore, as Wolf and Wolff point out, Schindler's observations lasted only a few minutes ([40], p. 55). Gastroscopic observations of varying mucosal changes in the same and different patients from time to time have been made (29) and these accord very well with the psychosomatic concept that the patient at the time of each examination may be experiencing different emotions based upon both his reaction to the examination and to the constantly changing circumstances of his daily life. Schindler's concept ([31], p. 156) of progression taking place from hemorrhage to erosion to acute ulcer to chronic ulcer is certainly not at odds with that of Wolf and Wolff (37) where sustained emotional tension results in hyperacidity, gastritis, minor mucosal erosions, and finally, peptic ulcer.

The presence of hydrochloric acid in sufficient concentration to activate pepsinogen is a *sine qua non* for the development of peptic ulcer (31). Although higher levels of acid are found in most cases of active peptic ulcer, ulceration does not develop in all cases of hyperacidity and may heal in the presence of hyperacidity (25). Furthermore, normal or low levels of gastric acidity may also be associated with the development of ulcer providing the acid concentration is sufficiently high to activate pepsinogen. It is not at all unusual to find varying levels of acid at different times in the same individual. Sandweiss (29) has reported about equal concentrations of acid in the nocturnal gastric juice of normal and uncomplicated, mildly distressed duodenal-ulcer patients. The variable acid levels in the same and different ulcer patients could

be related to the variation in intensity and character of the emotional feelings experienced at the time of each examination, just as are the varying gastroscopic observations.

CONSIDERATIONS IN SYMPTOMS

The seasonal recurrence of ulcer symptoms and their frequent association with upper respiratory and other infections is well recognized. Too much emphasis, however, has been laid on the purely physical factors involved. When seasonal recurrence is present, an inquiry into the patient's problems related to that time of year usually discloses adequate basis for the onset of symptoms.

The return of ulcer pain with colds or other infections usually has its basis in the character structure of the patient. For example, the patient may be engaged in working out a difficult problem. The intercurrent infection interferes with his efficiency and conflict is created when he feels that he must solve his problem despite his new handicap, at the same time being inwardly fearful that he will not succeed. He refuses to permit himself to slow down or take a less exacting standard of performance for himself and again tries to function in the presence of a conflict of "I must but I can't," which is the ulcer-producing situation.

On the other hand, many ulcer patients having an intercurrent illness are able to accept this external factor as being responsible for any deficiency in their performance and do not attempt to solve the insoluble. They remain free of conflict and do not develop ulcer symptoms at this time.

Frequent recurrence of symptoms further characterizes peptic ulcer. In the Army, the strain of military life was found to induce recrudescence (13, 27). Among civilians one usually finds that each new attack is precipitated by events of such significance to the patient that sustained emotional tension develops. The patient may himself be consciously quite unaware of the disturbing nature of the events recited, but the effects on the stomach and duodenum are none the less marked. Under such circumstances administration of food, milk, or alkalies has beneficial effect only during the period in which the free acid is reduced. The attack itself will last as long as the patient experiences the ulcer type of conflict situation.

Usually the problems of the ulcer patient are temporary, and with their solution comes remission. When the ulcer type of conflict either disappears or is worked through by the patient, the presumption is that the balance of the autonomic nervous system, affecting the stomach and duodenum, is restored with resurrection of the protective devices and fall in gastric secretion. When this happens, the attack comes to an end.

The cause of pain in peptic ulcer is still obscure ([6], p. 129). It has been established ([40], p. 156), however, that stimulation of a hyperemic mucosa will result in pain while no pain can be thus elicited in the normal stomach; in the engorged state there is increased sensitivity to pain induced by vigorous contractions. Physiologic changes associated with emotional experiences have been found roughly proportional in extent to the intensity and duration of the emotion experienced (*ibid.*, p. 129). Thus, emotions that give rise to persistent hyperemia may lower the threshold to pain for a prolonged period.

Nocturnal pain, a typical symptom of peptic ulcer, has been related to the nocturnal secretion of gastric juice without the buffering action of food. Methods of treatment have been devised to maintain some milk or amphogel in the stomach throughout the night (35), thereby preventing the acid from activating the pepsinogen. The cause of nocturnal hypersecretion in the active peptic ulcer patient has not yet been satisfactorily elucidated, but it should be recalled that the patient may utilize his dreams to seek a solution to his conflict, and in this way the same physiologic response to the same emotional conflict as occurred in the daytime may appear and operate through the night. Alvarez (2) states that sleep does not bring quiet to all parts of the brain in tense persons and they may continue secreting strong acid in the late evening.

Here again it is fitting to cite the findings of Sandweiss (29) that the nocturnal secretion of acid is about the same in normal subjects and uncomplicated, mildly distressed duodenal-ulcer patients. Clinically one finds that the asymptomatic ulcer patient, dissociated from situations which create the peptic ulcer type of conflict, is for all practical purposes a normal individual—able to eat and drink almost anything without untoward symptoms provided that his departure from the prescribed regimen does not in itself constitute a tension-producing stimulus.

CONSIDERATIONS IN DIAGNOSIS

Finding the character traits typical of the peptic ulcer patient aids in making the diagnosis of peptic ulcer. No differences have been found between the

gastric- and duodenal-ulcer types (21). Such traits —outgrowths of the central conflict described— include being overconscientious, meticulous, careful, and hardworking. A frequent remark of peptic-ulcer patients is, "If I do anything, I like to do it right and get it done quickly." They anticipate difficulties far in advance and rely heavily on plans to achieve their goals—all the while fearing and anticipating failure. They react badly to change, feeling inadequate to meeting the new requirements as they construe them, no matter how many successes were theirs in the past. They do not allow themselves the right to make an error and they function in many seemingly unimportant jobs as though their very existence were at stake. Such tension is made the greater and more obvious when they work under supervisors whom they consider strict and stern.

CONSIDERATIONS IN MANAGEMENT AND THERAPY

The usual treatment, embracing milk, cream, alkalies, antispasmodics, and rest, has therapeutic effects beyond those already established in the laboratory. The emotional experiences of the patient affect the response to treatment to an important degree. Wolf and Wolff ([40], p. 136) have shown that fat may entirely fail to decrease motility and secretion of the stomach, as it normally does, when the patient experiences emotions of anger and resentment. Similarly, if tension continues, milk and cream may fail to have their usually beneficial effect.

Most ulcer patients respond promptly to routine office therapy, and dramatically to hospitalization, but the type of treatment prescribed plays a minor role. Society sanctions, and the patient accepts his right to be treated while under the doctor's orders or when hospitalized. He need struggle no longer to achieve the impossible; his stomach and duodenum once again come into physiologic balance. Frequently, however, upon discharge from the hospital the patient returns to the conflict-exciting situation and despite careful dietary observance his symptoms promptly reappear.

The physician is confronted with one of his most confounding problems when the patient is unable to relax and accept his right to treatment and care. This type of ulcer patient either refuses silently to submit himself to the care of others or persists overtly in trying to direct management of his own illness. Such a patient is recognizable by his capacity to find fault with hospital personnel or treatment rendered. In these circumstances, epigastric pain becomes worse despite the usual forms of therapy. Danger of penetration and perforation always threatens these patients. When the patient accepts his right to treatment and care and delegates this responsibility to others, favorable response to therapy follows.

The patient's feeling towards the physician, however unwarranted, is one of the most important elements in the entire therapeutic situation; it often determines the success or failure of a particular mode of treatment. In evaluating the effect of a specific form of therapy, the attitudes of the patient towards his environment as well as towards the physician demand the utmost consideration.

The comfort derived from the hospital environment, and not the particular diet or medication, appears to be the significant factor in the patient's improvement. In an overseas Army hospital (14) patients improved promptly despite "relatively crude dietary measures available." Zetzel (42) observed that when soldiers with peptic ulcer anticipated automatic discharge from the Army because of the diagnosis they improved promptly during hospitalization. But when separation from service was not automatically a consequence of their ailment, their improvement was no longer uniform or prompt. In a civilian hospital (41) most ulcer patients improve promptly even though the diet includes, from the first day, beef, coffee, and whole vegetables, and no restriction is imposed on tobacco. Despite the widespread adherence to a strict dietary regime, an adequate comparison between strict and lax management has not been made (18).

The real attitudes of the patient toward his diet affect considerably the course of his illness. The patient may have no difficulty in adhering to a strict diet because of a disinterest in food, a desire to punish himself, or because he may be using his illness, and hence the ulcer diet, to explain his shortcomings.

The diet may also be the source of resentment and conflict to the patient. When, for example, he has to order mashed potatoes and chicken while his companions have "French fries" and spareribs, the emotions experienced may be more damaging to the mucosa of the stomach and duodenum than the forbidden foods would have been. On the other hand, if the patient throws caution to the wind, orders the "ribs and French fries" so as not to be too unlike his fellows, and if his conscience assails him for his transgression while he is eating or afterwards—and the ulcer patient has an overdose of conscience—again he will be led into con-

flict. Part of him will be self-recriminatory, while the other part will continue to support the action he took.

An inner, brooding resentment may develop against his having to be so different from other people. Not uncommonly revolt springs violently to the surface; the patient then completely violates his diet and prescribed regimen. For a while he is astonished to note how little distress results. Before long, however, the conflict situation returns and again he is seized with pain and distress.

Such unhappy developments, common to many ulcer patients at one time or other, may be avoided by explaining to the patient what the diet seeks to accomplish, that the diet is not the most important thing in his life, and by assuring him that occasional indulgence in food or drink medically contraindicated will have no dire effects. If the patient is encouraged to take an adult interest in his diet, and not to feel that it is something imposed from without, he will voluntarily follow the diet, feeling free to depart occasionally from the prescribed regimen.

When one recognizes that a particular patient would object to such instructions or be confused by them, the doctor had best then outline a specific diet and mode of conduct unless or until basic changes in the patient's attitude toward his diet can be effected. The approach to the diet is also thus determined by the character structure of the particular patient.

Occasionally a full psychosomatic history introduces features of personality which make possible a departure from the usual criteria for surgery. To cite one of several examples in the author's experience:

A patient, aged 52, had three episodes of tarry stools in the previous four years, with a history of recurrent ulcer type of pain since 1920. In 1935 an X-ray first revealed a duodenal ulcer. The most recent episode of bleeding was of a massive nature. The hemoglobin dropped to 6.0 grams. The immediate treatment consisted of bedrest, amigen feedings, morphine sedation, and reassurance that his fear of cancer was without foundation. His response was prompt. His hemoglobin returned to normal within two weeks, and he was placed on a convalescent Sippy diet within a week's time. The case had been considered one for interval surgery because of the age of the patient and repeated hemorrhages. A personality study, including a Rorschach, Wechsler-Bellevue, modified Goodenough, and personal interview, indicated that the patient's anxieties lay in the realm of his occupational endeavors. At home with his family he had no real disturbances, for he accepted the dependent role with his wife as he had with his mother during his early childhood. On his jobs he worked under great tension, as though his very life were at stake. No matter how unfair or inordinate were the demands made upon him by his employers and supervisors, he sought to meet their requirements, and often struggled unnecessarily to adjust to imagined standards and requirements.

In the course of several interviews, the patient came to realize and appreciate how his attitudes toward his work were derived from earlier attitudes, the basis for which no longer existed. In this way the patient was able to take a more rational approach to his work. Fortunately, he was receiving a pension which, because it provided a basic security, allowed him in reality to give up his compulsive attitudes toward his work. He was brought to see and accept his basic right to keep changing his job, if necessary, until he secured one in which he felt relaxed and happy. It was felt that with the even limited insight obtained, the patient, because of his favorable life situation, could avoid getting involved in the tension-producing endeavors associated with his ulcer symptoms, or at least not so frequently or to such intensity as formerly. The patient was asked to return for a brief interview periodically.

This case is cited as an indication that adequate management of an ulcer patient must necessarily involve the psychosomatic considerations, or as has been said many times, consideration must be given to the whole individual. An interesting and highly instructive discussion of the psychiatric treatment of peptic-ulcer patients is given by Saul (30).

In considering exercise for the ulcer patient, the physician must take into account the personality of the patient. Cannon ([7], p. 135) states that digestive processes may be profoundly affected by inert and idle excitement almost as much as if the utmost physical exertion were anticipated, and recommends (*ibid.*, p. 141) hard physical labor to work off the bodily changes which have occurred in preparation for vigorous physical effort. An ulcer patient unwittingly supported the basic wisdom of this advice when he described epigastric pain while bowling but freedom from symptoms while engaged in a strenuous game of football. While bowling, this patient was under tension, feeling that he had to do well before the spectators and fearing that he could not. Still he tried to meet what he believed were their expectations. The exercise involved in bowling was limited, the effect of the emotions on the stomach uninhibited. While playing football, the patient was in action constantly; his visceral function was subordinate to muscular activity. To balance movement, the autonomic nervous system must bring continual adjustments in visceral organ activity as well as in dynamics of the circulatory system, metabolism, and respiration (36). Furthermore, while the individual is in motion, conflict and tension are rare.

Combat troops were found to have a lower in-

cidence of peptic ulcer than base troops (14). Their symptoms appeared when hostilities ceased or when they were returned to a rear area (5). It may be presumed that both the integration of the organism and the physical activity involved in meeting actual danger protects against ulcer while the tension of waiting in the rear area and reacting to a feeling of "must and can't" predisposes toward the development of ulcer.

When a patient fears exercise will be harmful, the best course is to forego it until the patient's attitude changes. Otherwise, in attempting to follow the doctor's counsel, while not really wanting to and therefore feeling unable to, he may be thrown into the ulcer type of conflict anew. The type of exercise recommended during remissions must be the kind that the patient enjoys and which does not create tension in him. It is not the amount of energy expended but the needs of the individual which determine the exercise prescribed.

CONSIDERATIONS IN PROGNOSIS

The longer the interval between attacks, the better the chances for response to treatment. Adequate adjustment during this period may be inferred from the prolonged freedom from symptoms. Should symptoms recur frequently, they themselves may become a source of new tension because the patient finds or fears that they are an added handicap. Then a vicious cycle, symptoms giving rise to tension and tension to symptoms, is established. Hospitalization or other drastic measures may be necessary to break the cycle.

When one encounters an ulcer patient who has no apparent areas of real satisfaction and whose character structure is fixed and rigid, the chances for response to medical treatment, which includes investigation of personality, are very slight.

When a patient can be guided, either by manipulation of the environment or by the development of insight into an area where he functions freely and with relaxation, recurrences are fewer and occasionally eliminated. The more difficult patient must be brought to recognize the relationship between his ulcer and his emotional tension. He may then be encouraged to accept his right to rest and treatment when symptoms recur. In this way the symptoms are prevented from causing additional tension and conflict.

Bockus ([6], p. 431) refers to the pseudo-ulcer syndrome, which he calls pyloroduodenal irritability. Gastrointestinal X-rays are negative but this condition is still characterized by the same symptoms, personality, and constitutional configuration common to peptic ulcer patients. The treatment is the same and the etiologic features present in duodenal ulcer are provocative of this syndrome (*ibid.*, p. 432). Pyloroduodenal irritability is important because it is in accord with many clinical observations in which patients have an ulcerlike syndrome for many years and later develop roentgenographically demonstrable ulceration. Such patients exhibit the same type of underlying conflict during an attack of pain as does the true ulcer patient, and they react to their conflict in a similar manner. Unless adequate measures are taken to weaken the propensity of the individual to develop such conflict, the ultimate occurrence of chronic peptic ulcer may be anticipated.

COMMENTS

Although the psychosomatic approach lends understanding to many of the unusual findings in peptic ulcer, it does not, at this stage of our knowledge, provide the answers to all peptic-ulcer problems. As far as has been determined to date, gastric and duodenal ulcers are identical from the psychosomatic approach (21). Striking clinical differences between them have been observed; postoperative anacidity is more frequent in cases of gastric ulcer than in duodenal ulcer, and the formation of marginal ulcer is rare as compared with cases of duodenal ulcer (3). No matter what the psychosomatic factors may be, the possibility of carcinoma in gastric ulcer cases must always be considered. Many patients, furthermore, who have the specific type of conflict described do not develop peptic ulcer. This may be a difference of intensity and duration.

The appearance of peptic ulcer is regarded as a pathologic development incident to the specific type of autonomic nervous system imbalance obtaining in the emotions associated with the peptic-ulcer conflict situation and not as an answer to the needs of the patient, either conscious or unconscious. When the conflict is dissipated or the patient learns to handle his problem with greater equanimity, peptic ulcer may not develop, although evidences of other autonomic imbalance may still be apparent.

The question of how the acute ulcer which goes on to perforation differs in the psychic background from the nonperforating ulcer remains to be answered. Although the psychosomatic approach poses for the physician certain real problems of

time and training, these must be mastered if the patient is to receive the most effective treatment possible.

SUMMARY

1. The concept of peptic ulcer as a psychosomatic disorder affects considerations in etiology, pathology, clinical pathology, symptomatology, diagnosis, management, therapy, and prognosis.

2. In the usual case of chronic peptic ulcer, an underlying conflict exists in which the individual feels compelled to function in a certain manner despite anticipation of failure. The origins and significance of this conflict are presented and discussed.

3. The peptic-ulcer conflict situation involves both fear and resentment, each of which has opposing effects on the stomach and duodenum. When fear and resentment are experienced simultaneously, the reactions in the stomach are dissociated, often resulting in increased acid, motility, and vascularity, with decreased mucin (H. G. Wolff). It is postulated that during such dissociation other protective substances and mechanisms are likewise deficient in the presence of increased acid and pepsin. Such physiologic concomitants to this conflict situation are highly conducive to the development of ulceration.

4. The adjustments of the patient to his underlying conflict may be infinitely varied so that the outward appearance of these patients differs markedly.

5. The ulcer diathesis resides in the basic character structure which readily thrusts the patient into the peptic-ulcer type of conflict situation. If the situation is of short duration, the symptoms will also be brief; if sustained, they will be prolonged.

6. Chronic, indolent peptic ulcers heal as rapidly as acute ulcers when the conflict situation is removed.

7. The variations in gastroscopic findings, which are described, are best integrated by the psychosomatic concept, which assumes both that the emotions affect the color and appearances of the stomach, and that changing emotions are accompanied by prompt changes in the appearance of the stomach.

8. Varying gastric juice and acid levels during the day and night are explained by the changing emotions experienced.

9. Seasonal recurrence, frequent association of symptoms with infections, and frequency of recurrence are all related to the character structure of the patient.

10. The diagnosis of peptic ulcer is supported by finding a character structure which readily thrusts the patient into the peptic-ulcer conflict situation. Some of the character traits commonly found in ulcer patients are described.

11. The psychosomatic effect of treatment, including diet, rest, hospitalization, and exercise, is discussed. The emotional reaction of the patient is held to be of greater significance than the particular diet or drugs utilized in treatment. This does not preclude the possibility of developing measures to correct the autonomic imbalance in the stomach and duodenum associated with the ulcer type of conflict.

12. The evaluation of the character structure, the psychosomatic history, and the changes possible in the environment afford the best means of determining the prognosis in a particular case. The likelihood that the patient will become involved in the peptic-ulcer conflict situation is the basis for such prognosis.

13. The best prognosis exists for patients with the longest intervals between attacks, implying as it does, adequate adjustment during the intervals.

14. Patients with pseudo-ulcer syndrome (pyloroduodenal irritability) may develop demonstrable ulceration in later years if the conflict situation becomes sufficiently intense and sustained.

15. The patient's concern with his diet and pain may in turn result in tension which gives rise to more pain.

CONCLUSION

Peptic ulcer is a psychosomatic disease. Such a concept affords a better understanding of the many confusing manifestations of the ailment and makes available a more flexible and effective approach to them.

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NEUROPSYCHIATRIC RESIDENCIES OPEN UNDER VETERANS ADMINISTRATION

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The Relation of Group Morale to the Incidence and Duration of Medical Incapacity in Industry

KEEVE BRODMAN, M. D., AND LOUIS P. HELLMAN, M. S., WITH THE TECHNICAL ASSISTANCE OF TODD H. BROADBENT

THE duration of medical incapacity is related to intrapersonal disturbances, which may lead to prolonged convalescence from medical and surgical disorders (4,5). It is desirable to know whether the duration of medical incapacity is also related to interpersonal or group influences. That this relation is likely to be close is indicated by the fact that military units with high morale have a smaller sick call and fewer ineffectives (6) than do similar units with poor morale, and that in civilian life the most efficient departments of a firm have the least medical incapacity (1).

An investigation into the relation of the duration of medical incapacity to group influences has been impractical for two reasons. One is the difficulty of measuring the duration of medical incapacity. The other is even more serious; it is the problem of determining to which group an individual belongs.

Both these difficulties can be surmounted by making the investigation in industry. The duration of medical incapacity can be measured in terms of the number of days of medical absence, and the group to which an individual belongs can be defined as the department of the firm in which he works. A comparison of the amount of medical absenteeism in different departments will then indicate the degree to which medical incapacity varies in different groups.

A firm was chosen for this investigation in which the employees in each department were similar in sex, age, marital status, training, and income, and in which the work and physical facilities in each department were sufficiently similar to expose all employees equally to the causes of illness at work. The departments were thus alike, except that they had different individuals, physical and interpersonal relations, leadership and group traditions.

The total amount of incapacity from long and from short illnesses in each department was determined in terms of the number of employee days of absence from these causes, and the number of times employees from each department reported to the medical department was tabulated as a measure of the frequency with which they found it necessary to consult the firm's medical staff because of mild distress from illness. In addition, since medical incapacity is to be related to morale and interpersonal influences, the number of unexcused latenesses in each department was tabulated as a measure of the state of morale in that department. Morale is used in the sense of its dictionary definition, that is, conditions as affected by, or dependent upon, such moral or mental factors as zeal, spirit, hope, and confidence; the mental state of a group.

THE SAMPLE STUDIED

The investigation was carried out on the 600 employees of a mail order firm in New York City. This is the same sample that has been studied previously (1, 2, 3, 7). All employees except those in the shipping department and a few messengers were women, 20–50 years of age, about 20 per cent of whom were married, who earned about the same salary, and lived about the same travel time from the office. The distribution of age, marital status, and travel time from the office was similar in departments.

All employees had training in clerical work. They served an apprenticeship in one of four departments for about a year, after which they were assigned to their permanent department as vacancies occurred in the rest of the firm. There was thus no selective placement of employees. In only a few departments did employees have any special clerical skill such as the ability to operate a dictating machine or to do bookkeeping. All departments were housed in the same building.

METHOD OF STUDY

Since the departments are similar in staff and exposure to illness at work, significant differences in

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the amount of medical incapacity in departments can be related to differences in departmental influences. The size and significance of the differences in medical incapacity in different departments was determined by an analysis of variance, and the relation of medical incapacity to departmental influences was determined by deriving coefficients of correlation.

A tabulation was made for each department of:

1. The total number of days of "long" [1] medical absences (four or more days), as a measure of the total duration of industrial incapacity from long illnesses in that department.

2. The total number of days of "short" [1] medical absences (one, two, or three days), as a measure of the total duration of industrial incapacity from short illnesses in that department.

3. The total number of reports to the medical department, as a measure of the frequency with which employees in that department found it necessary to consult the firm's medical staff for mild medical distress.

4. The total number of unexcused latenesses as a measure of the morale in that department.

These items were tabulated for each department for each of the five quarters from September 1944 to November 1945. The rates for each department for each quarter were computed from this tabulation with formulas previously described (2, 7), and an analysis of variance was performed on these rates, using the Bliss Angular Transformation (8).

The degree to which medical incapacity is related to group morale was noted by deriving coefficients of correlation between medical absences and latenesses. These were computed using the 120 values for each item, of the 24 departments for the five quarters studied.

RESULTS

A summary of the data collected in the initial tabulation of rates is given in Table I. This table shows the highest, lowest, and average monthly departmental rates of long medical absence, short medical absence, report to the medical department, and lateness, for the year December 1944 to November 1945.

The span of departmental rates for the four items is quite large, indicating marked differences in medical incapacity and morale among departments. One department has a rate of long medical absence almost four times that of another; this difference is over three times for short medical absence, almost three times for report to the medical department, and twelve for lateness.

Departments thus differ markedly from each other in the frequency with which their employees have medical incapacities and latenesses. The extent to which these differences are significant is indicated by the analyses of variance.

TABLE I

THE LOWEST, HIGHEST, AND AVERAGE MONTHLY DEPARTMENTAL RATE PER 100 PERSON DAYS EXPOSED

	Lowest Monthly Departmental Rate	Highest Monthly Departmental Rate	Average Monthly Departmental Rate
Days of "long" medical absence	1.0	3.7	2.2
Days of "short" medical absence	1.1	3.4	2.3
Report to the medical department	4.4	11.5	7.2
Lateness	0.7	8.4	3.6

Table II summarizes for the four items the analyses of variance of the 24 departments during the five quarters. These analyses reveal that the differences in rates between departments are significant to different degrees for each item. The degree is comparable in terms of F_{dept} values, because the departments, the time interval studied, and the number of degrees of freedom are identical for each item.

The F_{dept} value for long medical absence of 1.96 falls short of being very significant, indicating that the relation between departmental influences and the duration of industrial incapacity from long illnesses is not as close as with the other items studied.

Each department maintains a rate of short medical absence, of report to the medical department, and of lateness that varies less from quarter to quarter than the rate of one department varies from that of another. Each department therefore maintains rates in these items that are constant and unique.

The F_{dept} value for short medical absence of 5.14 is considerably higher than the minimum necessary to be very significant. Each department maintains a rate of short medical absence that is constant, and is significantly different from the rates in other departments. The analysis thus indicates that short medical incapacity is closely related to departmental influences. The incidence of re-

[1] The term "short" medical absence is used to indicate absences of three days or less. Since the firm studied operates on a five day week, each "long" medical absence includes in addition at least one week-end, and so represents a period of at least six days without reporting for work.

TABLE II

ANALYSES OF VARIANCE OF QUARTERLY DEPARTMENTAL RATES PER 100 PERSON DAYS EXPOSED

	Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F_{dept}
Days of "long" medical absence	Departments	23	291.549	12.68	1.96*
	Seasons	4	316.095	79.02	
	Interaction	92	596.413	6.48	
	Total	119	1204.057		
Days of "short" medical absence	Departments	23	137.723	5.98	5.14**
	Seasons	4	237.190	59.30	
	Interaction	92	107.271	1.17	
	Total	119	482.184		
Report to the medical department	Departments	23	409.350	17.80	5.55**
	Seasons	4	306.859	76.72	
	Interaction	92	295.511	3.21	
	Total	119	1011.720		
Lateness	Departments	23	1087.683	47.29	11.56**
	Seasons	4	319.361	79.84	
	Interaction	92	376.522	4.09	
	Total	119	1783.566		

* Significant (5% level = 1.63).
** Very significant (1% level = 1.98).

ports to the medical department for mild distress from illness is also closely related to departmental influences ($F_{dept}=5.55$). Since only about a third of the medical incapacities and reports to the medical department are for infections, and these chiefly during the winter time, it is unlikely that departmental influences are due to the presence of infection carriers.

By far the highest F_{dept} value (11.56) is for unexcused lateness. The number of unexcused latenesses in each department is markedly constant, and markedly different from the number in other departments. A most intimate relation thus exists between the frequency with which an employee is late and influences in the department in which he works. These influences are obviously matters of morale and emotional attitudes, and not of physical forces. It may be concluded that the frequency with which an employee is late is a reflection of the morale and attitudes in the department in which he works.

If the morale and attitudes in the department are, in addition, reflected in the frequency with which an employee is medically incapacitated, then medical incapacity and lateness will occur in departments with similar frequencies. The extent to which they do is shown in the coefficient of correlation in Table III.

The correlation between short medical absences and latenesses is strikingly high for medical and psychologic data ($r=0.62$, Table III, Figure I),

TABLE III

COEFFICIENTS OF CORRELATION OF THE QUARTERLY DEPARTMENTAL RATES PER 100 PERSON DAYS EXPOSED

	Days of "Long" Medical Absence	Lateness	Report to the Medical Department
Days of "short" medical absence	0.23*	0.62**	0.49**
Report to the medical department	0.19*	0.16	...
Lateness	0.07	...	...

* Significant (5% level = 0.17).
** Very significant (1% level = 0.23).

indicating that short medical absences and unexcused latenesses do occur in departments with similar frequencies. The departmental influences related to short medical incapacity would thus seem to be in large measure as they are with lateness, the prevailing emotional attitudes and morale in the department. This is further corroborated by the fact that short medical absences are more closely correlated to latenesses ($r=0.62$) than to long medical absences ($r=0.29$, Table III), which, as shown above, have only little relation to departmental influences.

The correlation between long medical absences and latenesses in departments is not significant ($r=0.07$, Table III, Figure II). The departmental influences related to long medical incapacity are therefore not emotional attitudes and morale. The difference between departmental influences related

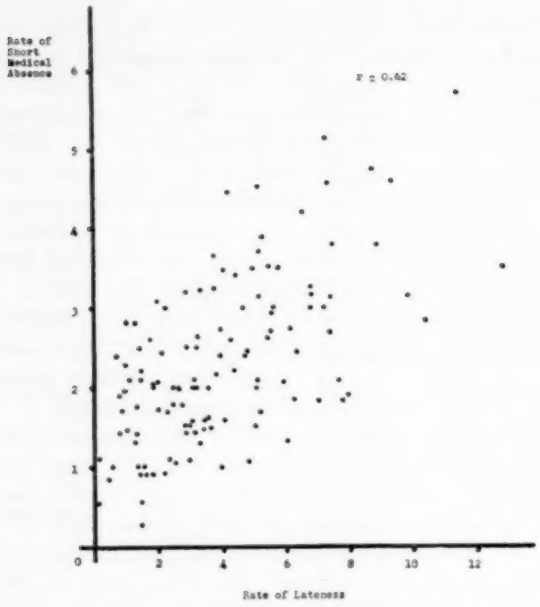

FIG. 1. The correlation of the quarterly departmental rates per 100 person days exposed of days of "short" medical absence with lateness.

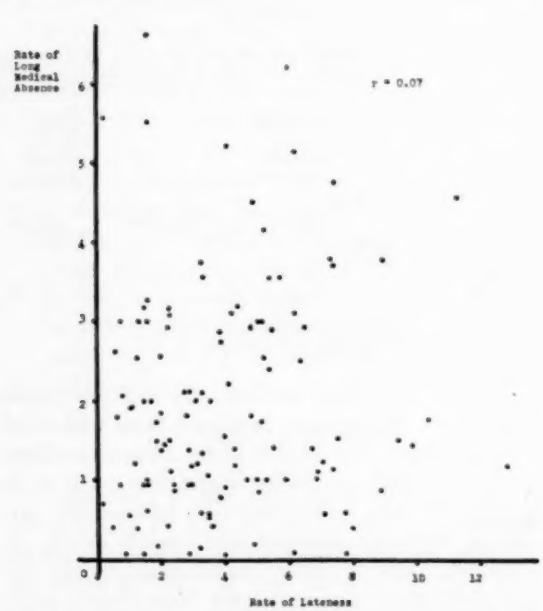

FIG. 2. The correlation of the quarterly departmental rates per 100 person days exposed of days of "long" medical absence with lateness.

to long and to short medical incapacity is also shown by the correlation of report to the medical department being significantly lower with long medical absence ($r=0.19$, Table III) than with short medical absence ($r=0.49$, Table III).

These analyses indicate that the incidence and duration of short medical incapacity is closely related to departmental, or group, influences, and that these influences to a large measure are the prevailing emotional attitudes and morale in the department.

COMMENTS

These data are concerned with incapacity from illness, and not of illness alone. Industrial incapacity is a measure not only of the occurrence of illness, but also of whether the individual becomes incapacitated and does not work. Psychologic factors of motivation and morale are obviously even more important in determining incapacity than the occurrence of illness. It is chiefly because incapacity and not illness is being measured that the data are so different for long and for short medical absences.

Long medical absences are for the most part due to major illnesses, in which the individual is incapacitated no matter how much he may want to work. The above data indicate that influences within the work group do not greatly modify the duration or frequency with which an individual is incapacitated by long illnesses.

Short medical absences of three days or less, on the other hand, are almost all due to minor illnesses, in which the individual can frequently come to work if he so desires. If he has poor motivation and morale, it is reflected in his unwillingness to work when he contracts minor illnesses. The data indicate that an individual's work morale is markedly influenced by the group in which he works, that the morale in different work groups is not the same, and that the state of morale of the group in which an individual works significantly influences the length of time he is incapacitated for work by short illnesses.

Medical absences of one, two, or three days have always been the most difficult to eliminate or reduce. Since the data here indicate that these absences are most frequent in work groups in which the morale is low, it seems appropriate to attempt the reduction of short medical absenteeism by the institution of measures that improve group morale.

The implications of these data in terms of psychosomatic relations are of special interest. The analyses demonstrate the importance of membership in a particular group in determining the incidence and duration of an individual's medical absences. Individuals take on the dominant attitudes and morale of their work group, and manifest them not only in the frequency with which they are late but also in the duration of their industrial incapacity from short illnesses. In spite of the

fact that the work itself involves only low grade emotional stresses and not any serious conflicts or crises, the life situations, the day to day associations, and the interpersonal relations in work groups are closely related to the frequency with which individuals develop short medical incapacity.

SUMMARY

1. The relation between group influences and the duration of medical incapacity was investigated in the 24 departments of a mail order firm, using medical absenteeism as the measure of medical incapacity.

2. Departmental rates in four items were studied:

a. The number of days of "long" medical absence (four or more days).
b. The number of days of "short" medical absence (three days or less).
c. The number of reports to the medical department.
d. The number of unexcused latenesses.

3. The 24 departments were found to have markedly different rates in these items. Analyses of variance showed these differences to be significant to varying degrees: least for "long" medical absence ($F=1.96$), greater for "short" medical absence ($F=5.14$) and for report to the medical department ($F=5.55$), and most marked for unexcused lateness ($F=11.56$). With the exception of "long" medical absence each department maintained a rate in each item that was "very significantly" constant, and that varied less in each department from quarter to quarter than the rate of one department varied from that of another.

4. No correlation was found between absence for long illnesses and lateness ($r=0.07$). However, in each quarter, those departments in which employees were frequently absent for short illnesses were also those in which employees were frequently late ($r=0.62$).

5. Since the frequent occurrence of lateness is a concomitant of poor morale, it appears that those departments in which employees are frequently absent for short illnesses are those in which the morale is poor. Medical incapacity is thus related to group morale.

6. The data indicate that different work groups have dissimilar morale, that an individual's work morale is markedly influenced by the group in which he works, and that group morale is intimately related to the occurrence and duration of short medical incapacities.

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NEW OFFICERS OF CENTRAL NEUROPSYCHIATRIC ASSOCIATION

The Central Neuropsychiatric Association held its twenty-third annual meeting in Galveston, Texas, on October 17 and 18, 1947.

The officers elected at this meeting were: William C. Menninger, President; Walter L. Bruetsch, Vice-President; Lee M. Eaton, Secretary-Treasurer, and Clarence E. Van Epps, Counselor.

AMERICAN SOCIETY FOR RESEARCH IN PSYCHOSOMATIC PROBLEMS

Program Announced for Fifth Annual Meeting

The Program Committee of the American Society for Research in Psychosomatic Problems has released the following tentative plans:

The place of the meeting: Chalfonte-Haddon Hall, Atlantic City.

Saturday morning, May 1, 1948, will be given over completely to the reading of short papers. The Committee will welcome any experimental or clinical studies of a psychosomatic nature. A suitable number of papers will be selected which can be read in approximately 15 to 20 minutes each. Others, if acceptable, will be read by title. Manuscripts should be sent immediately to:

Dr. Carl Binger,
Chairman, Program Committee,
714 Madison Avenue,
New York 21, New York.

Saturday afternoon, May 1, 1948, will be devoted to problems in Pediatric Psychiatry. Further announcement will be made about this session.

Saturday evening, May 1, 1948, will be devoted to a round table discussion on Methodology. Attendance at this session will be limited to members only.

Sunday morning, May 2, 1948, will be devoted to considerations on Diabetes.

Abstracts of Periodical Literature

Weiss, Edward

Psychogenic rheumatism

A common problem in the practice of internal medicine is the patient who complains of aches and pains in the muscles and joints and chronic fatigue. Often there is slight fever but otherwise the physical examination and laboratory studies are negative. Formerly such patients were often thought to be tuberculous; later rheumatic infection, with much attention to the heart, was suspected; nowadays chronic brucellosis is the most frequent diagnosis. In addition to the many physical and physiotherapeutic measures that are used in treatment, rest and more rest is urged upon the patient, which perpetuates the invalidism and leads to greater restriction and a more impoverished life.

These observations are based on a study of 40 patients encountered in a larger study of 200 patients with chronic fatigue, because so-called psychogenic rheumatism is only an aspect of the chronic fatigue problem. Of the 40 patients only 5 were men. Physical findings of significance were uniformly absent. Sixteen patients had slight fever, always less than 100 degrees, and in only 2 was there slight elevation of the sedimentation rate. Laboratory evidence for chronic brucellosis seemed positive in only 1 patient. Otherwise there was nothing to suggest infection and the temperature disturbance was regarded as an unimportant phase of the disordered constitution.

Psychosomatic study proved the presence of psychopathology rather than tissue pathology. Psychologic symptoms most frequently encountered were poor sleep and poor sexual adjustment, and a marital problem was the most frequent underlying problem. Significant emotional conflicts were found which were apparently responsible for the fatigue, but the special feature associated with muscular aches and pains was the presence of chronic resentment of which the patient was usually totally unaware.

The muscles serve as a means of defense and attack in the struggle for existence and thus internal tension is most easily relieved by muscular action. When the external expression of aggression in the form of muscular action is inhibited by repressing forces, then muscular tension may result which is felt by the individual as pain and limitation of movement and is often erroneously interpreted by the examining physician as fibrositis or muscular rheumatism.

Instead of calling this psychogenic rheumatism, fibrositis, or even muscular rheumatism, the most suitable diagnostic term is the psychiatric diagnosis applicable to each case.—*Ann. Int. Med.* **26**:890, 1947.

(AUTHOR'S ABSTRACT)

Alvarez, Walter C.

The migrainous personality and constitution. The essential features of the disease: a study of 500 cases.

The author regards migraine as a hereditary disease occurring in persons with a peculiar physical and mental and spiritual make-up, characterized by "storms" arising in the brain, with the headache "only one of the migrainous person's many troubles." In the absence of typical hemicrania preceded by scotoma or followed by vomiting he makes the diagnosis in patients with migrainous equivalents (uncharacteristic headaches, dizzy spells, abdominal symptoms) on the basis of certain personality characteristics observed on more than 500 patients with migraine, most of them women. In close agreement with other investigators in this field he describes the typical migrainous woman as short of stature with trim well-proportioned body, better than average looks, skill in dressing well, intelligent face, bright and expressive eyes, quick responses and movements. Migrainous women are generally hypersensitive to light, sounds, and smell. They are tense, react intensely to happenings, tend to worry, tire easily and often suddenly, and sleep poorly. They are usually above average intelligence, willing to assume responsibilities thus exposing themselves to additional stress. They frequently report about days when they are depressed, apathetic and hazy in their thinking (twilight spells). Dissatisfaction in marriage is often encountered. Frequency and severity of attacks of migraine depend largely on the amount of strain under which the patient lives. Mild forms of migraine are intensified and latent illness rendered manifest by additional inheritance of allergy, hypertension dysmenorrhea, or psychopathic disposition. These conditions should not be regarded as essential features or causal factors.

Since the tendency to migraine is hereditary, therapy should be directed to the study and remedy of life problems rather than to the search for some local pathology and the surgical eradication of presumably causal factors. Sedatives and endocrine preparations are ineffective.

Knowledge of the migrainous temperament aids in the diagnosis and treatment of otherwise puzzling cases.—*Am. J. M. Sc.* **231**:1, 1947.

(ALEXANDER S. ROGAWSKI)

Harrington, D. O.

Ocular manifestations of psychosomatic disorders

Calling attention to the prevalence of ocular signs and symptoms of psychogenic origin, Harrington com-

ments upon how often they have been referred to in the writings of ophthalmologists, and yet their significance has seemed to escape the writer's attention. From a considerable experience during the recent war, he has become more than ever convinced as to the intimate relationship between ocular manifestations, both transient and permanent, and psychic factors. This is illustrated from the author's experience with hysteria, glaucoma, and such ocular manifestations of vasomotor disturbance as amaurosis fugax, migraine, neurocirculatory asthenia, central angiospastic retinopathy, and Raynaud's disease. He calls for study of the psychic factors operating, and urges the efficacy of psychotherapy for the cure of many such sufferers. "That prolonged but reversible physiologic disturbance can eventually give rise to irreversible organic disease is no less true in the eye than in other body systems."—*J. A. M. A.* 133:10, 1947. (George S. Sprague)

Kapp, F. T., Rosenbaum, M., and Romano, J.

Psychological factors in men with peptic ulcers

Twenty men with peptic ulcers were studied from the psychosomatic point of view. None were psychologically mature. All had strong dependent desires which were secondary to either rejection or spoiling in early childhood.

One group utilized the mechanism of overcompensation to deny these desires, resulting in the overt character picture of the driving, hard-working, ambitious businessman. However, we found that the majority of our patients in a charity hospital were either outwardly passive and effeminate or openly acted out their deep oral drives.

Ulcer symptoms developed in all of our patients as responses to frustration of these cravings, when the various defence mechanisms they used to handle such conflicts proved inadequate.

Our study . . . confirmed Alexander's hypothesis that the fundamental psychologic factor in this disease is a conflict over intense dependent desires. Such a conflict may arise from opposition within the personality or from the environment. Although the conflict situation is similar in all men with peptic ulcer, the resulting personality facade may vary from exaggerated independence to parasitic dependence.—*Am. J. Psychiat.* 103:700, 1947. (Authors' abstract)

Gill, Norton A.

Pain and the healing of peptic ulcer

With several case histories the fact is demonstrated that there are cases of active ulcers without pain and others where pain persists even after the healing of the ulcers. It is concluded therefore that pain is not as secure a sign of activity of the disease as was thought till now.

A series of 20 patients, each with a chronic gastric ulcer, was given a daily hypodermic injection of ice of distilled water. They received no other therapy and were even encouraged to continue smoking. With one exception they healed within four to eight weeks and also lost their pain. It appears, therefore, that the pharmaceutical factor is less important than that of confidence in the treatment and other psychic factors. "If the habits of these patients could be altered permanently, they might have no relapse."—*Lancet* 250:291, 1947. (Oscar Pelzman)

Savitt, R. A.

Gastrointestinal disorders in military and civilian life

The author discusses some aspects of gastrointestinal disorders as he saw them from the psychiatrist's point of view in the Army, and as he continues to see them in civilian life. During a six-months' period in an Army Station Hospital, of 1876 soldiers admitted to the Gastrointestinal Service, 1125, or about 60 per cent were found not to have any organic lesions of the gastrointestinal tract. Of a series of 800 consecutive patients who had complete X-rays of their gastrointestinal tracts, only about 7 per cent showed evidence of organic disease.

By using the psychotherapeutic approach in functional gastrointestinal disorders, the number of patients admitted to the Gastrointestinal Service of this hospital was reduced by about 60 per cent. In treating these patients, the gastroenterologist and psychiatrist worked as a cooperative team.—*Rev. Gastroenterol* 14:401, 1947. (Ferdinand Fetter)

Wolf, S. and Wolff, H. G.

An experimental study of changes in gastric function in response to varying life experiences

The authors studied the changes in the gastric mucosa of patients with gastric fistulae which occurred as part of the response of the individual to adverse life situations. In general, there were 2 types of disturbances in response to threatening situations which may give rise to troublesome symptoms. These are characterized by either overfunctioning or underfunctioning of the stomach, and the same individual may show either type of reaction under varying circumstances. Gastric hyperfunction and hyperacidity were found to be associated with heartburn and epigastric pain of a gnawing quality, characteristically more intense when the stomach was empty and usually relieved by milk or alkali. The emotion accompanying these changes usually involved resentment or hostility toward an adverse life situation. Gastric hypoactivity, in which the mucous membrane became pale and flat, was accompanied by diminution in the secretion of acid and in the motor activity of the stomach. The associated symptoms were nausea and a feeling of fullness in the epigastric region. The emotions accompanying these changes were fear and sadness, and the individual manifested a desire to withdraw from the threatening situation rather than come to grips with it.

In summary, the principal difference between the emotional reactions accompanying gastric hypofunctioning on the one hand, and hyperfunctioning on the other, was whether or not the subject accepted defeat at the hands of his adverse life situation, or whether he got angry and fought the situation.—*Rev. Gastroenterol.* 14:419, 1947. (FERDINAND FETTER)

Hanman, Bert

Who are the physically handicapped?

Great differences of opinion exist as to who should be considered physically handicapped. There are those who cannot work; or who need rehabilitation; or who need help in getting employment; or who have physical limitations which must be placed suitably if harm is to be avoided. Whoever is unequal to the most arduous job is to that degree physically limited. When 2000 executives in one large corporation were recently examined, not one was found to be free from physical limitation, and 62 per cent had major diseases of which only one-sixth had been known to exist before examination. "The physically limited person is the average human being," and "Everyone is occupationally handicapped for all the jobs in which he cannot meet all these requirements." Therefore, any compulsory legislation for the employment of the physically handicapped is ridiculous. Rather, the skills of all workers may be used, according to their specific and individual capacities. We can forget the handicapped as such, and can deal with all workers as ordinary human beings, to be placed on jobs according to their individual capacities.—*Indust. Med.* 16:6, 1947.

(GEORGE S. SPRAGUE)

Cameron, D. E.

Psychologically hazardous occupations

In studies of acute psychiatric breakdowns occurring in industrial centers, Cameron considers that there are to be found five job characteristics which are causal factors in the illnesses. These are: 1) intense utilization of a limited range of the individual's equipment; 2) a fragmented job, the remnant of an occupation; 3) work which, though not requiring the full attention of the worker, yet never permits him full relaxation or freedom; 4) job needs which are both repetitious and not possible to carry on at the worker's natural performance speed; and 5) job settings which promote insecurity feelings, such as frustrations or insecurity in employer-employee relations. As many of these factors seem preventable, the author suggests measures for their reduction or prevention.—*Indust. Med.* 15:332, 1947.

(GEORGE S. SPRAGUE)

Schaller, W. F.

Psychoneurosis & industry

Traumatic disabilities diagnosed as psychoneuroses form a small but important part of the injured worker's problem. Only the exceptional worker is free from anxiety after injury. His studies often indicate to him that there are disturbing elements involved, or the manner of discussing his injuries suggests to the timorous and suggestible person that something is seriously amiss. It is therefore important to understand the mental state of the injured worker. In California, where the patient has a legal right of access to his medical reports, their perusal is the cause of misinterpretation, anxiety, confusion, and resentment. The author considers that "traumatic neurosis" should be abandoned in favor of "post-traumatic psychoneurosis" or "industrial psychoneurosis." He insists that medical opinion ought to be the sole criterion as to return to occupation on the old basis, or in some limited capacity rather than too-long continued inactivity of the worker after his injury. "The difficulty lies not so much with the patients themselves as with the complicated handling of their cases, including repeated examinations, hearings and dissentions which become the daily concern of these patients." He deplores the union rule that the worker should not return to a job of lesser earning capacity than before, and thinks that the commission should provide or facilitate work therapy when recommended by medical opinion. A continuous compensation award may be the most important single factor in perpetuating a psychoneurosis, but this is not only for monetary gain, but "compensation frequently symbolizes martyrdom to the hazards of industry, and is also considered a proof of serious injury. . . ." "A job is one of the best builders of morale and . . . idleness breeds invalidism."—*Occup. Med.* 2:3, 1946. (GEORGE S. SPRAGUE)

de Freitas, Otavio, Jr.

Accident at work. Introduction to its psychobiological study

The findings of other authors, such as Dunbar, about the accident habit as an etiologic factor in industrial accidents are confirmed by statistical material. Among a little over 100 workers in a factory (Fabrica Holanda) fifty accidents occurred over the period of one year. Thirty-five of the workers were affected. The distribution was as follows:

1	accident	each	25 workers
2	accidents	each	7 workers
3	accidents	each	1 worker
4	accidents	each	2 workers

Fifty per cent of the accidents, therefore, occurred in the group with 2 or more accidents composed of 10 patients. Among them were 4 that previously had consulted the factory physician for psychoneurotic symptoms.

Fifteen out of 30 workers suffered altogether 39 accidents:

1	accident	each	7 workers
2	accidents	each	5 workers
3	accidents	each	1 worker
4	accidents	each	1 worker
12	accidents	each	1 worker

Neurobiologia 9:54, 1946. (OSCAR PELZMAN)

Stanfield, Clyde E.

Personality repercussions of anterior poliomyelitis. A review of literature

The literature and some data contained in unpublished reports from representatives of the University of Colorado School of Medicine and Hospitals to the National Foundation for Infantile Paralysis are reviewed in summary, with reference to personality deviations occurring with or following infections of anterior poliomyelitis.

Some authors claim constitutional, neuropathic, and psychopathic predispositions to the disease and speak of a "poliomyelitis type." The selective character of the disease must be borne in mind in any statistical comparison of postpoliomyelitis patients with "normal controls." The literature on the long-term effect of anterior poliomyelitis on personality functioning and readjustment capacities is meager. No true mental retardation was found to be caused by attacks of poliomyelitis. The interpretation of Sister Kenny's term "mental alienation" seems controversial. A report on the care of patients during the acute stage and after in a New York City poliomyelitis epidemic in 1916 contains no reference to psychiatric problems. The first large-scale attempt to appraise the effect of the illness upon the patient as a total functioning unit appears to be a report by Griffin *et al.* describing a "strikingly successful" mental hygiene program during a Canadian epidemic in 1937. Personality factors in patients with muscular disability were analyzed in considerable detail by Ripley *et al.* in 1943. These authors felt that muscular disability induces no change in the basic structure of the personality but accentuates underlying traits which have been determined previously by the constitutional make-up and environmental situation. These conclusions were confirmed specifically in poliomyelitis by Copellman (1944) in a follow-up study of 100 convalescent children. The importance of recognition of emotional factors for the treatment is stressed by Ripley *et al.*

The relative scarcity of literature on this important problem indicates the need of more systematic investigations of the psychobiological repercussions from anterior poliomyelitis in order to evaluate the long-term effects wrought upon the personality by prolonged illness, deformity, loss of function, and resultant disturbance of the body image. Unpublished reports from the Colorado School of Medicine (1946)—preliminary descriptions of an initial study and part of a detailed program for a comprehensive and long-term psychiatric study proposed by Billings in 1941—represent a promising approach toward definition of the fundamental dynamics underlying personality deviations in 1) anterior poliomyelitis in particular and 2) chronic debilitating and deforming disease in general.

Such information should enhance the efficacy of overall management of the "polio" patient by disclosing verifiable principles for his psychotherapy to supplant the present empiricism.—*Am. J. M. Sc.* **213**:109, 1947. (ALEXANDER S. ROGAWSKI)

Ebaugh, Franklin G. and Hoekstra, Clarence S.

Psychosomatic relationships in acute anterior poliomyelitis

Sixteen poliomyelitis patients with some degree of paresis and a minimum age limit of 14 were selected at random for an intense factual psychosomatic study during the acute and early recovery stages of their illness.

The study was based on a "standard" psychiatric history supplemented by a social history requested from near relatives, thorough physical and neurologic surveys, a Rorschach test as soon as conveniently possible after the onset of the illness, various laboratory procedures including an EEG, daily progress notes, and behavior observations. A follow-up after discharge from the hospital including a thematic apperception test and another Rorschach test is proposed.

The following statements could be made from the preliminary study:

1. These individuals, when they first realized the nature of their illness, reacted uniformly with depression and anxiety.

2. Those with bulbar signs in addition to the spinal type of paresis tend to have a greater psychologic disturbance than those individuals with only spinal involvement.

3. These psychiatric disturbances developing in relationship to poliomyelitis are reversible to some degree by psychiatric therapy as measured by the Rorschach test.

4. Electroencephalographic tracings in individuals with spinal and bulbar types of poliomyelitis show no significant dysrhythmia.

5. Spinal fluid findings are not typical as to the various types or degree of involvement in poliomyelitis, although the protein content tends to be higher in those individuals with bulbar symptomatology.—*Am. J. M. Sc.* **213**:115, 1947. (ALEXANDER S. ROGAWSKI)

Le Vay, David A.

Psychosomatic approach to orthopedic surgery

It must be recognized that also in orthopedic surgery the psychosomatic approach should be applied. Orthopedic surgery plays a very important part in the rehabilitation of the population for the tasks of peacetime after this last war; this makes it even more important to consider the psychic factor in problems formerly regarded as purely physical.

It will be necessary to have psychiatric cooperation in the evaluation of orthopedic cases. They may be divided in three groups: 1) those in need of orthopedic care alone; 2) those needing both orthopedic care and psychiatric attention, even if the latter is confined to simple readjustment of personal attitudes, family tensions, and work situations; 3) those where the orthopedic complaint merely masks a serious mental derangement which is the real condition for treatment.

In chronic orthopedic conditions the question will

often arise as to why the patient came just at that particular time to the physician with his complaints. It will frequently be found that the patient's "threshold to discomfort has been lowered by some alteration in working conditions, or by a shift in family relations setting up an altered emotional state." Understanding the problem and fitting the circumstances to the individual often made surgery unnecessary, as was seen in the last war in many cases.

The most difficult problem of orthopedic patients is their adjustment to and acceptance of their physical disability; by it their responses to desires will be altered and they have to substitute for those of normal individuals. If they are unable to accept the reality of their handicap they may find refuge in a phantasy world. Regression to infantile states may take place. There may be unwillingness to recovery because of the advantages analogous to the secondary gain.

Unconscious wish for punishment plays a part in accident proneness. Identification and projections may be important mechanisms in some cases.

It is obvious in orthopedic surgery also that the patient-physician and patient-nurse relationship, play an important part. The patient, being in the hospital, is in a similar situation as that of childish dependency in the original family set-up.

The author admits that the consideration of the deeper psychodynamics, "often leads in practice to what appears a phantastic theory of disease." He explains the overhostile reception of the approach by many physicians by the fact that they too are having neurotic trends like the patients. Therefore such explanations threaten their own integrity.

If it were possible to speed up in a film the development of a Dupuytren's contracture it might show it as a process akin to the purposeful grasping by a greedy hand. There is a gradation of time scale among the locomotion disorders of psychogenic origin. In hysterical conversion symptoms of sudden onset the purpose can be seen more easily, but also in the longest cases, where the "functional moment" appears negligible, it may be fundamental and, if looked for, the symbolic meanings of the disease for the patient well might be found.

The author discusses the application of psychosomatic principles in the interpretation of muscular diseases, rheumatism, and osseous neurites and finds it useful even in such somatic conditions as Paget's disease.—*Lancet* **252**:125, 1947. (Oscar Pelzman)

Swanton, C.

Asthma and other psycho-physical interrelations

The idea is postulated that asthmatic attacks are precipitated by disorders of cerebral inhibitions in persons with the asthmatic diathesis, which latter might represent an inherited autonomic nervous system stigmatization.

An interesting speculation is offered regarding the role of inhibition in the production of the asthmatic attacks. It is known that there are so-called suppressor bonds in the cortex. If they are stimulated they produce inhibition. Normal responses to stimulation of the precentral gyrus can be altered or inhibited by stimulation of an area (2A) just anterior to that region. Autonomous nervous system responses are in part regulated by cortical activity and this is also achieved by inhibition. This is most easily seen in functions that at birth were fully automatic, as respiration, defecation, and so on. "It is not difficult to imagine that the imperfect control of our emotional behavior may result in disorders of inhibition producing an abnormal reaction of the autonomic nervous system." This might be the link between psychic and physical mechanisms in hysterical symptoms. The inhibition mechanism might play an important role in many psychosomatic entities.

In chronic asthma an overexcitation of the vagus seems to take place. Adrenalin can be given with benefit. We may presume that inhibition of the sympathicus has taken place, rather than a stimulation of the vagus. This way it is easier to understand the beneficial effect of adrenalin.

The sympathicus is stimulated as an ordinary emotional response to rage or excitement. If the personality make-up of a patient is such that the normal response is inhibited, the physiologic concomitant, outpouring of adrenalin, does not take place and the vagus prevails.

The author thinks that there is a stigma (probably inherited) of the central nervous system in certain personalities predisposing them to exhibit the development of peculiar personality responses; these (asthma, allergic reactions, etc.) are end reactions of a central disability.

The personality of the asthmatic and, even more, of his parents play an important role in the development of symptoms. A parent is found to be domineering, often in a gentle way and often overprotective. The asthmatic himself is aggressive, nervous, demanding, and there is a conflict between his self-expressive and aggressive tendencies and the necessity to suppress them in order to secure love and avoid rejection. It is stressed that the asthmatic usually is very suggestive and that this factor helps in many therapeutic successes which eventually turn out not to be permanent.

Different factors which have been suggested as being the cause of asthma are discussed in detail. As far as change of climate is concerned, it is felt that the change of environment connected with it is of much more importance. Much importance has been given the infective factor which, however, is felt to be a secondary effect. The allergic factor is the most prominent one in the consideration of etiology. Here prominent allergists are of the opinion that psychic factors can bring about changes in threshold of sensitivity to allergens. A discussion of the different therapeutic approaches with consideration of the psychologic factor and 2 case reports conclude the article. (Oscar Pelzman)

Ficarra, B. J. and Nelson, R. A.

Phobia as a symptom in hyperthyroidism

Phobias were elicited from all 115 hyperthyroid patients questioned in this study. (Eight patients were male.) It is not indicated whether the phobia was present before the onset of thyroid disease.

Most patients had claustrophobia or monophobia. "In almost all cases the combination of thyroidectomy and intensive psychotherapy resulted in a disappearance of the phobia."—*Am. J. Psychiat.* **103**:831, 1947. (Louis Paul)

Twitchell-Allen, Doris

Educability of a "deteriorated" epileptic patient

The case is reported of a white man aged 23 who had had idiopathic epilepsy for seventeen years, with almost continuous grand mal and petit mal seizures, and who at the end of this time appeared to be rather completely deteriorated. Remarkable strides toward normalcy appeared to be the result of removal of phenobarbital medication and close regulation of seizures with dephenylhydantoin sodium, and a psychologic guidance program over a four and one-half year period.

The case appears significant in pointing to the need for clarification of the concept of epileptic deterioration. To this end, it seems important to treat cases of iodiopathic epilepsy separately from those of other convulsive disorders in statistical or clinical studies, to use discrimination in applying the concept of the deteriorative results of the seizures themselves, to differentiate the effects of sedatives and intermittent dullness [an epileptic equivalent] from chronic impairment and to separate those forms of inferior functioning which represent emotional reaction to disease from those derived from neurosomatic deterioration.—*Arch. Neurol. & Psychiat.* **57**:617, 1947. (Author's Summary.)

Pai, M. N.

The nature and treatment of "writer's cramp."

In America and France, where compensation is not paid to workers suffering from writer's cramp, its incidence is almost negligible. It appears to be a neurotic symptom.

Writer's cramp developed in this author's patients, not after excessive hours of writing, but when they were faced with the prospect of being employed without suitable pay on jobs involving much writing.

In 1880 neuropsychiatric patients, 9 per cent showed some incoordination of the muscles of the hand resulting in a writing disturbance. Ten samples of writing are reproduced.

When the form of writing was tremulous, the patients were found to have acute severe anxiety neuroses. Spastic, cramped, ataxic, or jerky forms were found in neurotics with marked hysterical reactions. Paralytic forms, characterized by slovenly and almost illegible writing, were found in cases of organic disease of the central nervous system.—*J. Ment. Sc.* **93**:68, 1947. (Louis Paul)

Sweet, C.

Enuresis: A psychologic problem of childhood

Control of the bladder, as of the bowel, has three stages: 1) Reflex during earliest infancy, about every fifteen minutes. No attempt need be made to keep the infant dry. 2) After the end of the first year, the interval may be lengthened to an hour or longer, with increased awareness, but as yet little or no conscious control 3) The gradual coming of urination under conscious control, with awareness of time and place and conscious wishes. Trained and untrained infants reach this goal at the same time. Thereafter, the persistence of enureses will be due to any combination of three factors: either the child has not yet grown up enough psychologically to control his bladder, or subconsciously he wants to remain in or revert to the irresponsible state of infancy, or he is expressing a subconscious resentment against his parents. Treatment must then be the reeducation of the parents and the child, psychologically, rather than with the use of drugs or punishments. When enuresis continues into later childhood or adult years, the victim's self respect demands that he believe it to be unavoidable, so that there is a lack of self confidence in his ability to act otherwise. Girls seldom continue enuresis after the menses become well established, and both sexes often discontinue it overnight just before they marry.—*J. A. M. A.* **132**:5, 1946. (George S. Sprague)

Schmideberg, Melitta

On some neurotic difficulties in nursing mothers

Reactions of 5 neurotic mothers to breast feeding are presented. Some women may express unconscious fantasies in the various things they do during suckling, and for this reason the author advises against insisting that the mother concentrate on the nursing process.

"Normally, a woman derives sensual pleasure from suckling. She seems to transmit this pleasure to the baby by her nipples and thus stimulate him—and *vice versa*. Interference with this pleasure seems to be an important reason for the difficulties on the part of either one. Disapproval of this pleasure is the reason some women feel suckling to be disgusting; fear of this guilty pleasure is frequently the reason for giving it up; suppression of the fear is a reason for finding it disappointing. The repression of this sexual feeling often gives rise to the fear of being hurt by the baby, just as repression of genital pleasure regressively stimulates the fear of being hurt in intercourse."

Other psychologic accompaniments of nursing are discussed. The author finds that pregnant and nursing women are quite susceptible to their environments, and their reactions are largely influenced by the way they

are being treated. Physicians and nurses must consider these psychologic needs.—*Psychiat. Quart.* **20**:147, 1946.

(Louis Paul)

Greenhill, M. H.

A psychosomatic evaluation of the psychiatric and endocrinological factors in the menopause

Most endocrinologists feel that the adjustment of the body to a progressive hypo-ovarianism as it occurs in the menopause is entirely a physiologic process. Most normal women will have few symptoms, which this study confirms.

Four different groups of women, totaling about 300 and including 100 normal controls, were studied. The results showed that the majority (59 per cent) of normal women experienced no psychiatric symptoms during menopause. Of those who did, 75 per cent had mild autonomic lability, and the rest mild tension or depressive symptoms.

Neuroses present at the menopause always had existed before, and often were increased in severity.

Many patients had been diagnosed "menopausal syndrome" on the basis of psychiatric symptoms, and were found to have no evidence of hypo-ovarianism.

Estrogens are of no value in the treatment of psychiatric (neurotic) symptoms in menopausal patients. They are recommended in instances where autonomic symptoms were found to have existed prior to the menopause and to have been accentuated by it.

The term "menopausal syndrome" is not justified because correctly employed it refers to a normal physiologic process, and it properly does not include psychiatric symptoms.—*South. M. J.* **39**:786, 1946.

(Louis Paul)

Paster, S.

General aspects of psychosomatic medicine

The author discusses the evolution of the concept of psychosomatic medicine, and the role of the emotions in producing disease processes. In a recent survey f 585 psychoneurotic patients conducted in 6 Army Hospitals, it was found that 66 per cent of the patients had symptoms referable to one or another system of the body. Of these, the largest number, 29.4 per cent of the total, had symptoms referable to the gastrointestinal tract. Furthermore, in the author's own experience, 15 per cent of approximately 10,000 psychoneurotic soldiers complained of gastrointestinal symptoms not explainable on an organic basis.

The author points out the various personality types that are apt to develop particular psychosomatic syndromes, as spastic colitis, peptic ulcer, constipation, asthma, etc., and presents case histories of the major types of psychosomatic disorders encountered in the Officers Ward of an Army General Hospital. He concludes by pointing out the dangers of treatment of psychosomatic illnesses by physicians who are not adequately trained in this field, and the need in many of these cases for extensive psychotherapy by a trained psychiatrist.—*Rev. Gastroenterol.* **14**:391, 1947.

(Ferdinand Fetter)

Mead, Margaret

Concept of culture & the psychosomatic approach

It is the contention of this paper that the views so usually held of the individual with his psychosomatic reactions as leaving outside of himself the effects and influences of culture are erroneous. The concept of "normal" is ordinarily taken to be "statistically usual." But this does not take into consideration the complex interrelationships between the individual and his culture, and it is this which will give an essential meaningfulness to the facts as observed. Every human being has had some of his potentialities selected for him by his culture. No single item in his socialization is a biologically given piece of behavior which has not been moulded by his culture. The culture may take hints from the details of physiologic development and may proceed upon those lines, thus revealing a pattern which can be related to the structure of the body and to the physiology, but no direct necessity compels the culture to adopt this set of symbols.

Just as "normal" is felt to be a concept which must take into consideration the cultural pattern, so the notion of "health" is to be envisaged not alone as a statement of activities in a body. It properly has significance, and has been created in just its particular form, as the result of cultural influences. The idea of pathology bases upon the notion that there have been set up certain changes from an assumed "normal,"—but it is often lost sight of that these changes occur in conditions many of which have been formed or modified characteristically by the particular cultural influences to which the person has been subjected.

"Immunity, either in individual or in cultural terms, may be expressed as a vulnerability to some other disorder, and the question can reasonably be expressed in either way. . . . The same individual, in a different culture, but with similar constitution and similar life history and idiosyncratic phrasing, might develop a very different pathology." The physician is continually looking for deviations from the expected, that is, from what he calls normal because of his familiarity with the culture which forms the setting. Mead complains that this is a tendency to identify only the unusual and deviant effects as those which are given integrated expression in the organism. This regards the organism which is not subjected to extraordinary pressures and events as being outside the psychosomatic frame of reference because it is outside the therapeutic frame of reference. Rather, she states that the psychosomatic point of view applies to every individual, not only to every patient, and that there is no basic human personality but that each person must be seen against the cultural base line. Every individual pays some psychosomatic prices for his adjustment. When the prices are

special or extreme, we see him as diseased, or as dying; but when they are similar to those paid by his neighbors, we see him as living his life.

She states that there is as definite a pattern of the interaction between the psychosomatic functioning organism and the cultural system as there is of the individual psychodynamics of particular pathologic conditions. When in cultural change a greater heterogeneity occurs, "adequate social forms for the expression of points of strain and tension in the personality will be lacking, and the individual will be forced back upon hs own body for symbolic expression." A complete psychosomatic approach would call for an identifying of "that which is common to every individual who is reared in our society, and [an ability] to see these special character types, which are found in association with special disease pictures, as variants of this basic cultural type." She believes that the physician actually, though unawares, does do this to a degree which accounts for his amount of success in therapy, thinking of it as being "human nature."

Really, society is the patient, and the findings of psychosomatic medicine, "when placed in a cultural frame, become relevant for education, become basic data for social planning."—*Psychiatry* **10**:1, 1947.

(GEORGE S. SPRAGUE)

Burlingame, C. C.

Psychiatric Sense & Nonsense

Psychiatry, having so recently come into the spotlight, must avoid overplaying its part and needs to look to itself carefully lest it confuse sense with nonsense. We do not yet have well established disease entities for many psychiatric problems, but only descriptive terms. Shock therapy and lobotomy, while useful, must not be overvalued. Psychotherapy, the author believes, is the best available treatment method when combined with the use of sound physical medicine. The mental patient must be trained to develop and to use his mental and physical resources in the world as it exists outside the mental hospital. Attention must therefore be given to needed aids in four fields: 1) his vocational life; 2) his avocational life; 3) his social and recreational life; 4) his physical self. This makes for a practical and realistic approach to the cure of psychiatric disabilities. Only when these practical and known factors have been dealt with is the psychiatrist justified in feeling that he has measured up to his responsibilities to be a good physician, a sociologist, a psychologist, a specialized type of educator, and a vocational guidance expert. "Any psychiatrist who does not fulfill all five of these intellectual disciplines is destined to fall short of his possibilities."—*J. A. M. A.* **133**:14, 1947.

(GEORGE S. SPRAGUE)

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Book Reviews

Medicine in the Changing Order

New York, Commonwealth Fund, 1947, 240 pp. $2.00.

In 1942 the New York Academy of Medicine appointed a Committee under the Chairmanship of Dr. Malcolm Goodridge for a study of the present status of medical care in the United States. This was known as the Committee on Medicine and the Changing Order, and was composed of physicians, representatives of the allied professions, and a number of prominent laymen.

This little volume of 200 odd pages represents a resumé of the findings of this distinguished Committee. The book opens with an investigation into the origins of the present problems in medical care, tracing the progress of American medicine from Colonial times to the present. The authors point out that as medical service in the United States has improved, its cost has increased proportionally. There follows a discussion of medical care in relation to the industrial revolution and the development of "big business." Succeeding chapters take up medical care in urban and rural communities and show how the problem of medical care differs in different parts of the country. There are chapters on public health services and preventive medicine. There is also an interesting discussion on the role of the hospital in modern medical care. The Committee is strongly in favor of group practice, especially when conducted in connection with a first-class general hospital. In the chapter on nursing care, a strong plea is made for increasing the number of trained practical nurses, and their role with respect to the growing number of patients with chronic disease is stressed.

The most important part of the book has to do with the discussion of voluntary and compulsory medical insurance. The portion of the book which precedes the chapter on medical insurance affords a logical historical approach to discussion of the medical insurance problem. The Committee aptly points out that in America our knowledge of voluntary medical insurance has been derived from experience, while of compulsory health insurance we know little, and that derived mainly from European experience. The various industrial and medical society insurance plans are discussed, as well as the Blue Cross plan for hospital insurance. While realizing the shortcomings of voluntary insurance schemes, the Committee advocates further development of nonprofit medical insurance in preference to any compulsory Federal program. The authors maintain that a system of compulsory national health insurance presages the use of a vast and costly administrative machine. Even when powers are delegated to the individual states, experience has shown that the trend is toward simplification of social insurance, as observable in foreign countries and even in our own relatively young experience with insurance. They also point out that the common belief that compulsory insurance is merely a device for spreading costs is not supported by the facts. In European countries the cost of governmental health insurance has gone up continually since the original institution was planned, and there is reason to believe that the same increase would take place in this country. The Committee, however, believes that some form of medical insurance is one of the essential requirements for solving the problems of medical care. It also believes that while voluntary insurance will spread only slowly and incompletely among the low-income families, it nevertheless provides flexibility for local initiative and will encourage new and better methods for organized medical services, such as group practice. It conceives voluntary insurance as a necessary experiment in prepayment, which avoids the pitfalls of compulsory insurance. For these reasons the Committee believes that everything should be done, by way of grants, subsidies, and employers' contributions, to hasten the growth of voluntary medical insurance.

In the chapter on the quality of medical care the Committee states that progress in psychiatry, including increasing awareness of psychosomatic conditions, justifies a strong curricular position for this subject. It calls for not only certain course requirements, but also for an emphasis on the implications of this field for other phases of clinical training.

This monograph gives the reader an admirable review of present-day thought on the problem of medical care. One could wish that a little more had been said about the problem of chronic disease which, in the opinion of the reviewer, constitutes the most important problem in the field of medical care and medical insurance.

The report is unbiased up to a point. The Committee has decided in favor of voluntary health insurance and the quotations are from writers who oppose compulsory Federal insurance. The reviewer is sympathetic with the Committee's point of view in believing that the time is not yet ripe for compulsory health insurance. Certainly there should be continued opportunity for experiments with voluntary schemes. However, because of the character of our country and the constant migration of people from state to state, it would seem that some time in the future some sort of federal supervision of health might become desirable.

RUSSELL L. CECIL

Muller, H. J., Little, C. C. and Snyder, L. H. *Genetics, Medicine and Man*

Ithaca, N. Y., Cornell University Press, 1947, 158 pp. $2.25.

The late Dhan Gopal Mukerji used to tell his 8-year-old son a story at bedtime and the next day ask the

little boy to "tell it back." Noticing carefully what had been memorable to the child's mind and what had escaped it, Mukerji improved his already considerable ability to interest and delight children with his stories. With similarly admirable humility the American advertising copywriter concerns himself not so much with what he has written as with what his readers probably will have understood his words to mean. Or, to use an analogy even more familiar to the physician, the more careful dieticians subtract what was not eaten from that which was offered on the patient's tray in order to make a closer estimate of what was actually ingested, and even then they have their reservations as to what was absorbed.

It would be interesting to know how much of the six short chapters—two each—by Muller, Little and Snyder, are within the assimilative powers of, say, 500 physicians graduated from 1920 to 1940. In their original form these chapters comprised the Messenger Lectures at Cornell in 1945, whose purpose is the raising of "the moral standard of our political, business, and social life." Like other University lectures that are later put out in book form, these lectures set forth the brilliant original discoveries and suggestions of the authors, accompanied by important but extremely condensed information on the field as a whole. The result is neither a simple, well-proportioned exposition for the uninitiated nor a technical resumé for professional geneticists: it is something to try chinning yourself on.

Nonetheless, these 158 pages will reward a reasonably active mind. Though Professor Muller's chapters are close-knit, precise, and thorough, the reading is enlivened by his admirable aptness of illustration, e.g. "It might at first sight seem hopeless to try to analyze these bodies further, however, for they are so tiny that, for example, it would be possible for all of the spermatozoa representing the entire coming generation of camels in Egypt to pass at the same time through the eye of an ordinary needle!" Dr. Little's emphasis upon the variety of parental influences will surprise all those who have hitherto oversimplified the contrast between heredity and environment. And Professor Snyder's chapters—perhaps the most readily available for the physician's absorptive "powers"—make clear how complicated are the conditions that allow a gene to produce its full and recognizable effect. How many physicians have read that susceptibility to diphtheria is dependent on a recessive gene substitution and that paralytic poliomyelitis is dependent on a dual variability, genetic and nongenetic?

The essence of individuality lies not in the isolation of the individual from his milieu but in the uniqueness of his relationships to it. Till now physicians have remained strangely incurious of the individual's ties to his genetic milieu—his parents and other antecedents. But all three milieux are in play—interior, exterior, and anterior.

ALAN GREGG

Abrahamsen, David

The Mind and Death of a Genius

New York, Columbia University Press, 1946, 220 pp. $3.00.

Dr. Abrahamsen has produced a delightfully written study of Otto Weininger, a man who in 1903, at the age of 23, produced a prodigious philosophical work, and then in the same year, committed suicide. Weininger's main work "Sex and Character" is generally not well known in America, and it was with interest that the reviewer read Dr. Abrahamsen's summary of Weininger's concepts.

Dr. Abrahamsen's principal aim, however, is to discuss Weininger's personality. To this end the author has avoided all questions of the validity of Weininger's work since he feels that any scientific work is to be judged on its own merits apart from the personality of its creator. Utilizing letters, documents, Weininger's writings and numerous other references the author attempts to paint a picture of Weininger's personality, its development, and its interrelationship with the concepts expressed in "Sex and Character." A general background is given by a description of the Vienna of the 90's. Dr. Abrahamsen ultimately concludes that Weininger suffered from a schizophrenic illness.

Dr. Abrahamsen's material is interesting and is presented in a very readable form. In general, he has shown commendable restraint in making interpretations from his data and avoids all the far reaching generalizations that are so easy in a study of this nature. His conclusions as to Weininger's personality and illness, while not capable of proof, are logical and do not tax the credulity of the reader. As a well written analysis of a little known but interesting man living in Vienna's most fruitful period the reviewer can recommend this book to the readers of this journal.

JEROME L. SAPERSTEIN

Blau, Abram

The Master Hand

New York, American Orthopsychiatric Association, 1946, 206 pp. $4.50.

In "The Master Hand" Dr. Blau presents a critical evaluation of the origin and meaning of right and left sidedness and its relation to Language and Personality.

The book is well organized, starting with a presentation of various problems relating to laterality, followed by a description of the characteristics of preferred laterality. Special parts are devoted to Dextrality (preferred right laterality) and Sinistrality (left preference) with a discussion of its significance, its development, and its association with particular personality characteristics. The final part is concerned with the factor of cortical dominance in language and a critique of various theories previously used to explain developmental language disorders such as stuttering, specific reading disability, and developmental motor awkwardness.

It is most refreshing to read a book which so succinctly presents pertinent historical and clinical data, sharply segregated from the frequently unjustifiable conclusions based on these same facts. Dr. Blau analyzes the mass of theoretical material relating to the origin and significance of preferred laterality with clarity and offers convincing evidence to show that it is an acquired cultural trait and not an inherited one as it is so often claimed.

Preferred laterality is a relative trait which has meaning only in relation to a particular activity and a particular organ such as hand, foot, or eye. A consistent right or left pattern for different activities is rare. In very young children and in primitive man bilaterality is the undifferentiated state. While in a general way preferred laterality is based on biologic human potentialities, it is specifically and crucially determined in each individual by learning through educational or other cultural forces or by accident. It is the functional preference that leads to a functional dominance of the corresponding cerebral lobe and not the other way around. However, why the right side originally became more desirable than the left as the preferred side remains a subject for conjecture.

Sinistrality is explained as a deviation in the learning process which ordinarily leads to dextrality. Three types of sinistrality are described—that due to inherent physical or mental deficiency, a second type related to faulty education, and sinistrality due to emotional negativism. It is in the analysis of personality factors of individuals with negativistic sinistrality that Dr. Blau clarifies meaningful relationships. This type of sinistrality may be a symptom of an infantile psychoneurosis characterized by a defiance and contrary attitude against a dominating, restrictive authority or other frustration. This habitual reaction pattern may then become set in the organism as a psychosomatic trait. Later in life these persons may show the typical obsessive-compulsive (anal) character. Secondary psychiatric complications due to feeling different or to an awareness of social discrimination do not occur until later in life and while they may be more apparent as feelings of inferiority or inadequacy, they are not as important as those which enter into the formation of the basic character.

This reviewer agrees with the author that it is futile to approach the treatment or prevention of developmental language disorders from the standpoint of dominance confusion and that treatment must be directed at the underlying neurosis. The theory of mixed dominance does not help us in the treatment of the numerous other neurotic symptoms seen in stutterers which are directly related to the intensity of their anxieties. Nor does it explain the ease with which severe stutterers can talk in favorable social situations without going through involved, unproved neurophysiologic explanations. Why stuttering is so much more prevalent among males is still to be answered.

While this book will no doubt arouse a storm of protest from those who are bound down by an inflexible organic approach to the problems of dominance and language it is nevertheless an outstanding contribution. It is one of the few books on the subject which actually presents the problems from the standpoint of the total personality. Its implications for treatment make it of great importance to those who are concerned with training and teaching children.

S. Mouchly Small

Arthur, Grace

Tutoring as Therapy

New York, Commonwealth Fund, 1946, 125 pp. $1.50.

This informative little book describes an experiment in tutoring carried out in a large grade school in St. Paul in the days of the WPA. "The first step in any program of individual teaching is careful psychological diagnosis." Dr. Arthur proceeds from here to emphasize the correct validation of a child's ability and achievement by means of psychologic tests in order to adapt the teaching to the specific needs of the person taught. Brief sketches of tutoring situations are given; the selection, training, and supervision of tutors are discussed. "Those most likely to do outstanding work are the women who have known some children intimately and who enjoy the companionship of children." The tutor's qualification does not include an understanding of the very complex psychodynamics so often encountered in cases of impaired intellectual functioning. It is rather the "supervising psychologist" who controls the situation, who gives the directives which then are carried out by the tutors. The importance of the early discovery of learning disabilities is stressed because it renders tutorial help more economical and effective. The closing chapter shows how the community could organize a tutorial project preventing a great deal of human waste, failure, and unhappiness.

Dr. Arthur makes the problem appear simple, indeed. Psychologic tests and very scanty family or developmental data suffice to prescribe a tutorial plan which always seems to work. The correlation of intellectual, emotional, and somatic factors is rather vague and the psychodynamics in the 11 case illustrations never reach a point of clarity. Dr. Arthur's good feeling for children's needs, her respect for their individual perplexities, have undoubtedly helped many children. But one looks in vain for a rationale which would be applicable to the baffling variety of learning difficulties as observed in children and adolescents. There is no doubt that properly planned and executed individual teaching will remedy many a bad situation, but the puzzling cases where common-sense tutoring fails are unfortunately omitted in this report. In this respect the title which refers to therapy is misleading; in no case, for example, was a conflict treated the expression of which was the learning difficulty. The problem of differential diagnosis is not discussed. It was all good individual teaching but not therapy.

Dr. Arthur's program deserves attention in every community because learning difficulties are of appalling frequency. But before codifying the matter of learning problems, as done in this report, we should leave ample room for applying our knowledge of personality diagnosis, of motivation and learning to the great variety of cases which arbitrarily are lumped together as an entity, called "children who have good minds but cannot learn."

PETER BLOS

Witmer, Helen Leland (ed.)

Psychiatric Interviews with Children

New York, Commonwealth Fund, 1946, 443 pp. $4.50.

This book consists of detailed descriptions of the treatment of 10 patients by 8 different therapists. There are discussions by each therapist, and foot-notes are used to comment on the descriptions of the interviews. There are introductory and concluding chapters by the editor, Helen L. Witmer. The aim of this unusual approach is, in the editor's words, "to show various ways in which psychiatrists in child guidance clinics utilize the therapist-patient relationship for therapeutic ends." The book is, consequently, both a sizing up of child guidance clinic practice and an evaluation of a far more elusive thing, namely psychotherapy itself. Child guidance is described, together with a history of the movement. The dual approach to patient and parent is emphasized. The editor, herself a social worker, concludes that child guidance is "a new form of social service."

This reviewer has the impression that the editor was irresistibly drawn into the second problem, a scrutiny of therapy as such—by the fascination of the enigmatic quality of therapeutic relationships. How far the work goes toward providing useful ideas about treatment must be left to the judgment of each individual reader of the whole book. What it does do is give glimpses into therapeutic situations. However, even though the cases are set forth in more detail than the reader is likely to find elsewhere, "they impose heavy requirements on the reader . . . (who) must first immerse himself in (the) preconceptions" of their authors. One is not always made adequately acquainted with the authors' conceptions and therefore the book is frequently indigestible.

Dr. Phyllis Blanchard begins with a case during which she reveals a good deal about her point of view and her diagnostic methods. The latter receives some attention by both Blanchard and Witmer in the introduction. In this reviewer's opinion these discussions of psychopathology are the most valuable part of the book. It is rather startling to observe the diversity of treatment given the fundamental subject of psychopathology in other parts of the book. For example: Moyle says in case 2: "One must make some attempts to obtain a fairly clear conception of the 'pathology,' so to speak, in a situation, in order to judge the possibilities of giving help and to determine the methods that are to be used." In another place, (Case 4) he says: "We have found this (fits of weeping) to be one of the commonest indications of 'anxiety.'" Moyle may be portraying an nihilistic or pessimistic view of the science of psychopathology as applied to young patients, but the *idea* of applying some science of pathology to any medical problem is old enough to be ready for a more forthright application to psychiatry, even when talking to beginners.

Beata Rank, in case 3, has a different approach when she says that the manifestations of normal development and those of truly abnormal conditions are often confused, thus stressing the need for accurate psychopathologic knowledge.

Dr. Frederick Allen's views on therapy, previously described in his monograph, are well summarized here. Indeed, they are more comprehensible when accompanied by a case report, which is embellished with no fewer than 160 footnotes. Allen not only stresses the intangibility of therapy—he believes that incompleteness of knowledge about it is necessary for its existence. "I am convinced that there would be no therapy if all that took place could be explained and stated." One wonders how much further he feels we can broaden our understanding without approaching dangerously close to "all."

Blanchard again, in case 9, presents a 9-year-old boy whose psychopathology is admirably summed up. The selection of treatment method is made clear. One perceives how ideas were made tangible and usable to the child. The indications for termination of treatment are discussed with evidence that there was a continuation of improvement after interviews ceased.

The most enjoyable and valuable paper, in this reviewer's opinion, is that of Dawes (case 7). The diagnosis and treatment of a neurotic girl are admirably expounded.

One issue in treatment receives considerable attention in every case, and that is termination. There are no "supportive" or paternalistic treatments of long duration employed here. The ideal therapeutic relationship seems to be considered by all authors to have a definite dénouement as well as a proper beginning.

This reviewer feels that it is open to question whether a book of this sort is a good tool for furthering knowledge and understanding of therapy. It might be better if therapists formulated their cases and their opinions more fully and used less verbatim reporting. The latter seems too raw, too personal, and too undigested to be assimilable by another. One must attempt to generalize rather than particularize about treatment if he is to apply scientific methodology to it. True, it is repeatedly said that the relationship of two people is the dynamic of therapy. It is possible that this generalization suffers from being empty through excessive breadth.

Those engaged exclusively in psychosomatic medi-

cine will not find much of interest in this book. One case (6) had an episode of abdominal pain; another (9) stuttered; another (8) had various gastric complaints. Physical data are not given for any of these cases.

The format of the book is good. There is no index. This is a pity, since the volume will be used largely by students who would like to compare viewpoints on various topics readily.

A. W. Fraser

Beaumont, Henry

Psychology Applied to Personnel

New York, Longmans, Green and Co., 1946, 167 pp. $1.75.

This little volume is intended to serve as a manual for personnel workers in industry and can be used as a teaching tool also. The book is devided into two parts: part 1—statistics, and part 2—an exercise designed to measure the amount of information gleaned from the author's supplementary text: The Psychology of Personnel. In addition, the author presents a fairly complete bibliography on major industrial topics, e.g. understanding employees, selecting employees, training, supervision, health, etc.

The book should contribute much to the training of personnel workers in spite of a major deficiency. In the section on statistics the author fails to show the need for finding the reliability of differences of mean averages. Although group comparisons are made no mention is made concerning the statistical significance of found differences. In industrial personnel practice it is often necessary to use this statistical technique.

Furthermore, the title appears to be somewhat misleading since the contents and the method of presentation are more akin to a specific manual or hand book for personnel workers than to a text on generalized industrial psychology applied to personnel, as the title seems to suggest.

Arthur Weider

Fidler, Antony

Whither Medicine, From Dogma to Science?

New York, Thomas Nelson, 1946, 128 pp. $2.00.

The author, a lecturer in medicine at the Polish School of Medicine, Edinburgh, proposes a medicine of probability to replace the present orthodox "causal" scheme of medicine.

His purpose is "to examine critically the implications and consequences of the materialistic [i.e., deterministic and unicausal] theory in medicine" but I feel he falls far short of his goal, which is unfortunate for critical expositions of basic medical theories are as desirable as they are rare.

First discussed is the notion of cause, i.e., same cause—same effect, and it is established that whether something, say a tissue, is called "healthy" or "pathological" depends on whether it is the "cause" of health or sickness. In spite of the fact that the "very conception of health and disease is rooted in the causal theory," and diagnosis is the endeavor to name a particular cause (i.e., the disease), Fidler finds that there is no definition of cause in medicine or the biologic sciences (except in theoretical bacteriology).

He then demonstrates to his satisfaction that "clinical evidence proves that there is no causal relationship between clinical manifestations and the allegedly causal factors." Animal and biologic experiments are found invalid for medicine, and the laws of conservation of mass and energy, along with the principle of the uniformity of nature, are controverted.

However, the author finds that medical practice and theory "unconsciously acknowledge the principle of probability." Probability here means a nonobligatory relationship between two factors; when one is present the other may, but need not, be "predicted."

The subject matter of the medicine of probability is the patient's "statement concerning his feelings" of "dis-ease." "This latter feeling is synonymous with clinical symptoms that now acquire the full status of diseases."

In order to show how the new medicine works, Dr. Fidler classifies patients in groups according to numerical data: age pulse rate, temperature, etc., only. Diagnosis, being a nonmeasurable datum, is disregarded. Several samples of patients with the same numerical characteristics are compared, and it is found that the variation in the mortality rate from one group to the next is less than the variations found among groups classified according to the orthodox (diagnostic) method. This is taken to demonstrate the superiority of the probability method.

The author foresees that when more and more measurable data are included, and the experiences of thousands of cases have been tabulated, physicians will be able to predict in an individual case whether and exactly how long the patient will live. Similar statistics would be available for the duration of illnesses and the results of rigorously standardized treatments applied to appropriate groups of patients.

It seems to me that such an eventuality of certainty of prediction implies that we can know *all* the pertinent data, which is an impossibility, at least in the biologic sciences at this date. Evidently Dr. Fidler hopes to change that.

In the midst of his animadversions concerning orthodox medicine, Dr. Fidler points out some failings in our applications of statistical methods, and his criticisms on this subject are admirable, but otherwise I felt most of his strictures uncalled for, and the result of examining the words used by investigators, instead of their behavior.

If he had noticed what physicians do rather than what they say, he would have discovered an antipathy toward theoretical considerations, or healthy skepticism about them, or occasionally—as in psychosomatic research—utilization of advanced formulations. In any case, no "official" or orthodox scheme of medicine prevails.

A critique of medical theories will be welcomed when it is issued. Until then, readers will find this book equally provocative, half-baked, and inconclusive.

LOUIS PAUL.

BOOK NOTES

Merritt, H. H., Mettler, F. A. and Putnam, T. J.
Fundamentals of Clinical Neurology
Philadelphia, Blakiston, 1947, 289 pp. $6.00.

In a brief, well printed, and beautifully illustrated book, the authors have presented the basic anatomic and physiologic data necessary to an understanding of clinical neurology. Though clinical entities are briefly mentioned, the emphasis throughout is on basic structure and function of the nervous pathways. Only brief references to treatment are included.

Though prepared as an elementary introduction for the general practitioner, the book will probably be more useful to the medical student, and can be highly recommended for this purpose. Despite its admitted brevity, a few words as to such common neurologic conditions as migraine, epilepsy, or Meniere's disease would be a helpful addition. Future editions could also include a short summary of current knowledge of electroencephalography and its field of clinical usefulness.

The many multicolored plates, diagrammatically presenting the basic anatomical pathways, are most instructive, and with the thorough index, deserve especial commendation.

PETER G. DENKER.

Engle, Earl T., Editor
The Problem of Fertility
Princeton, Princeton University Press, 1946, 262 pp. $3.75.

This book is a collection of papers and discussions from the Conference on Fertility of the National Committee on Maternal Health, held in February, 1946. The purpose of the Conference was to disclose the progress of investigations on the processes of reproduction in domestic animals. The problems of fertility discussed are of economic importance to animal breeders and of clinical importance to physicians, and the Conference brought together leading animal husbandrymen and clinical researchers. In addition to the excellent research papers presented, each chapter is followed by provoking critical discussion.

The books covers the relationship of fertility to the time of ovulation, discusses the hormonal control of ovulation, and considers the status of the cervical mucus as related to the menstrual cycle, spermatozoa activity, and fertility; motility, viability, and fertilizing capacity of spermatozoa are discussed. Human fertility as well as that of laboratory and domestic animals is considered.

The book, presenting important research material in the subject, is an excellent record of a highly desirable conference. Some of the research technics (as, for example, the determination of cervical muscus viscosity) could conceivably be utilized by those interested in psychosomatic research.

WILLIAM D. STANCIL.

Render, Helena Willis
Nurse-Patient Relationships in Psychiatry
New York, McGraw-Hill Book Company, 1947, 346 pp. $3.00.

The author has approached the problem of the nurse-patient relationships in psychiatry with forthright style, lucid exposition, and explicit detail. Heavily colored by state hospital requirements, the text presents the qualifications of a psychiatric nurse and a brief description of the various illnesses with their characteristic psychopathology followed by an excellent account of the nursing care involved. Of special value is the section on rehabilitation, coordinating the many services within a mental hospital. Throughout, the emphasis is laid on the importance of the nurses' attitudes to the patients, stressing patience, gentleness, thoughtfulness, and skill.

Timely as this text may be, its fault lies in the almost Kraepelinian approach to mental illness. The nurse is asked to handle emotional symptoms objectively but is given no understanding of dynamic causation beyond the mention that causes exist. At times accuracy is sacrificed for simplicity, for example, in psychoneuroses, "Mood disturbances, if any, are mild." The discussion of the attributes of a good psychiatric nurse is idealistic but unfortunately unrealistic. The problem of the patient's involvement with the nurse and the nurse's emotional reactions in involvements is treated lightly.

While such a book will be of value to the nurses in hospitals where genetic-dynamic psychotherapy still may not be available, it will fall short of being helpful to the many psychiatric nurses in the teaching centers, the clinics, social fields, industry, private hospitals, and private practice.

MARY J. SHERFEY.

Kelley, Douglas M.
Twenty-two Cells in Nuremberg
New York, Greenberg, 1947, 245 pp. $3.00.

This book will be read with profit by those who wish to know more about the personalities who created and ran the Nazi machine. Each of the Nuremberg defendants is separately described by Dr. Kelley, who gathered his information in part by the examination of records, but mainly by extensive interviews while serving as Psychiatrist to the Nuremberg Jail. A separate chapter on Hitler is based mainly on observations about him made by those who had been in most intimate contact with him. Goebbels and Himmler, the only other highest ranking Nazis not jailed, are more briefly described on the basis of second-hand information. In the final chapter of the book the author discusses the significance of his findings to the American voter.

Each of the characters is described in turn, but their interrelationships in the Nazi hierarchy are also given some consideration. Dr. Kelley writes in clear, simple style. His data are impressive. He sheds light on many of the less well understood aspects of the personalities involved. While some of his interpretations are debatable, he has, on the whole, stayed close to the facts. The book is readable and stimulating.

NATHANIEL WARNER.

BOOKS RECEIVED

GRANICH, LOUIS. *Aphasia: A Guide to Retraining.* New York, Grune and Stratton, 1947, 108 pp. $2.75.

JELLINEK, E. M. *Recent Trends in Alcoholism and in Alcohol Consumption.* New Haven, Hillhouse Press, 1947, 42 pp. $.50 (paper).

PODOLSKY, EDWARD. *Red Miracle; The Story of Soviet Medicine.* New York, Beechhurst Press, 1947, 274 pp. $3.50.

Proceedings of the Eleventh Annual Convention of the National Gastroenterological Association, 1946. Samuel Weiss (ed.). New York, Medical Authors' Publishing Co., 1947, 187 pp. $2.50.

Psychoanalytic Study of the Child., vol. II. New York, International Universities Press, 1947, 424 pp. $7.50.

SADLER, WILLIAM S. *Mental Mischief and Emotional Conflicts.* St. Louis, C. V. Mosby, 1947, 396 pp. $6.00.

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